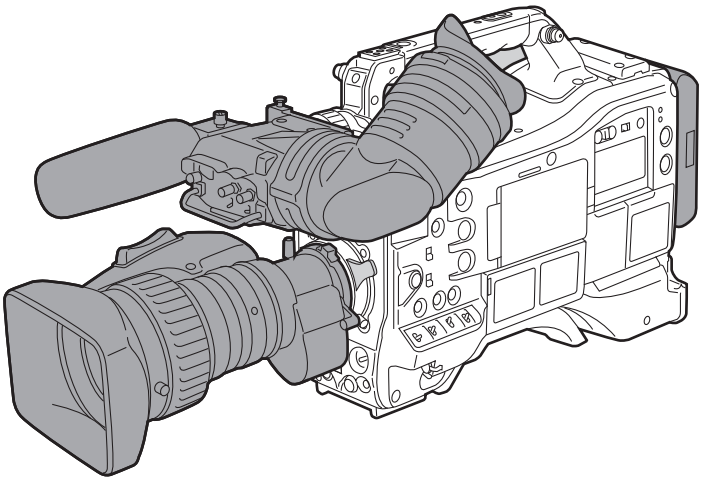
Register now!!
This product is eligible for the P2HD 5 Year Warranty Repair Program.
For details, see page 5.
http://panasonic.biz/sav/pass_e/

Panasonic

Operating Instructions

Memory Card Camera-Recorder

Model No. AJ-PX5000G



Before operating this product, please read the instructions carefully and save this manual for future use.

M0913HM1103 -YI

ENGLISH
VQT5E21A-1(E)

Read this first!

indicates safety information.

WARNING:

- To reduce the risk of fire, do not expose this equipment to rain or moisture.
- To reduce the risk of fire, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

WARNING:

Always keep memory cards (optional accessory) out of the reach of babies and small children.

CAUTION:

Do not remove panel covers by unscrewing them. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION:

To reduce the risk of fire and annoying interference, use the recommended accessories only.

CAUTION:

To reduce the risk of fire, refer mounting of the optional interface boards to qualified service personnel.

CAUTION:

Do not jar, swing, or shake the unit by its handle while the conversion lens or another accessory is attached.
Due to the added weight of the conversion lens, any strong jolt to the handle may damage the unit or result in personal injury.

CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:

Do not lift the unit by its handle while the tripod is attached. When the tripod is attached, its weight will also affect the unit's handle, possibly causing the handle to break and hurting the user. To carry the unit while the tripod is attached, take hold of the tripod.

CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

CAUTION:

Do not leave the unit in direct contact with the skin for long periods of time when in use.
Low temperature burn injuries may be suffered if the high temperature parts of this unit are in direct contact with the skin for long periods of time.
When using the equipment for long periods of time, make use of the tripod.

CAUTION:

A coin type battery is installed inside of the unit.
Do not store the unit in temperatures over 60 °C (140 °F).
Do not leave the unit in an automobile exposed to direct sunlight for a long period of time with doors and windows closed.

indicates safety information.

FCC NOTICE (USA)

Declaration of Conformity

Model Number: AJ-PX5000G
Trade Name: Panasonic
Responsible Party: Panasonic Corporation of North America
Two Riverfront Plaza, Newark, NJ 07102
Support contact: 1-800-524-1448

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

CAUTION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet “Something About Interference” available from FCC local regional offices helpful.

FCC Warning:

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user’s authority to operate this device.

NOTIFICATION (Canada)

CAN ICES-3(B)/NMB-3(B)

A rechargeable battery that is recyclable powers the product you have purchased.

Declaration of Conformity
with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in Electrical and Electronic Equipment
(adopted by Order №1057 of Cabinet of Ministers of Ukraine)

The Product is in conformity with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment (TR on RoHS).

The content of hazardous substance with the exemption of the applications listed in the Annex №2 of TR on RoHS:
1. Lead (Pb) – not over 0,1 % or 1000wt ppm;
2. Cadmium (Cd) – not over 0,01 % or 100wt ppm;
3. Mercury (Hg) – not over 0,1 % or 1000wt ppm;
4. Hexavalent chromium (Cr6+) – not over 0,1 % or 1000wt ppm;
5. Polybrominated biphenyls (PBBs) – not over 0,1 % or 1000wt ppm;
6. Polybrominated diphenyl ethers (PBDEs) – not over 0,1 % or 1000wt ppm.

Декларація про Відповідність
Вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в електричному та електронному обладнанні
(затвердженого Постановою №1057 Кабінету Міністрів України)

Виріб відповідає вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в електричному та електронному обладнанні (ТР ОВНР).

Вміст небезпечних речовин у випадках, не обумовлених в Додатку №2 ТР ОВНР, :
1. свинець(Pb) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
2. кадмій (Cd) – не перевищує 0,01 % ваги речовини або в концентрації до 100 частин на мільйон;
3. ртуть(Hg) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
4. шестивалентний хром (Cr^{6+}) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
5. полібромбіфеноли (PBB) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
6. полібромдефенілові ефіри (PBDE) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон.

Декларация о Соответствии
Требованиям Технического Регламента об Ограничении Использования некоторых Вредных Веществ в электрическом и электронном оборудовании
(утверждённого Постановлением №1057 Кабинета Министров Украины)

Изделие соответствует требованиям Технического Регламента об Ограничении Использования некоторых Вредных Веществ в электрическом и электронном оборудовании (ТР ОИВВ).

Содержание вредных веществ в случаях, не предусмотренных Дополнением №2 ТР ОИВВ:
1. свинец (Pb) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
2. кадмий (Cd) – не превышает 0,01 % веса вещества или в концентрации до 100 миллионных частей;
3. ртуть (Hg) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
4. шестивалентный хром (Cr^{6+}) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
5. полибромбифенолы (PBB) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
6. полибромдифеноловые эфиры (PBDE) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей.

EEE Yönetmeliğine Uygundur.
EEE Complies with Directive of Turkey.

This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Customers can download a copy of the original DoC for this product from our DoC server:
http://www.ptc.panasonic.de/

Manufactured by: Panasonic Corporation, Osaka, Japan
Importer's name and address of pursuant to EU rules:
Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, Germany

EU

TO REMOVE BATTERY

Main Power Battery (Ni-Cd / Ni-MH / Li-ion Battery)

- To detach the battery, please proceed in the reverse order of the installation method described in this manual.
- If a battery made by any other manufacturer is to be used, check the Operating Instructions accompanying the battery.

Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

P2HD 5 Year Warranty Repair Program*1

Thank you for purchasing this Panasonic P2HD device.
Register as a user for this device to receive a special service warranty up to five years of free warranty repairs.

Customers who register as users on the website will receive an extended warranty repair valid for up to five years.

	1st year	2nd year	3rd year	4th year	5th year*5
P2HD device*2	Basic warranty*3	Extended warranty repair*4			

*1: Please note that this extended warranty is not available in some countries/regions. *2: Not all models eligible for extended warranty coverage. *3: The basic warranty period may vary depending on the country/region. *4: Not all repair work is covered by this extended warranty. *5: The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Purchase P2 product → Register online within 1 month → "Registration Notice" e-mail sent → Free 5 years of Warranty Repairs

Make sure to save the "Registration Notice" e-mail during the warranty period.

Details about user registration and the extended warranty: http://panasonic.biz/sav/pass_e

Please note, this is a site that is not maintained by Panasonic Canada Inc. The Panasonic Canada Inc. privacy policy does not apply and is not applicable in relation to any information submitted. This link is provided to you for convenience.

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- All other names, company names, product names, etc., contained in this instruction manual are trademarks or registered trademarks of their respective owners.
- This product is licensed under the AVC Patent Portfolio License. All other acts are not licensed except private use for personal and non-profit purposes such as what are described below.
  - To record video in compliance with the AVC standard (AVC Video)
  - To play back AVC Video that was recorded by a consumer engaged in a personal and non-commercial activity
  - To play back AVC Video that was obtained from a video provider licensed to provide the video
    Visit the MPEG LA, LLC website (http://www.mpegla.com/) for details.
- Use of DCF Technologies under license from Multi-Format, Inc.

How to read this document

■ Illustrations

- Illustrations of the camera, menu screens, and other items, may vary from the actual items.

■ Conventions used in this manual

- Words and phrases in [ ] brackets indicate details and content displayed in the viewfinder or LCD monitor.
- Words and phrases in < > brackets indicate design text used on this camera, such as button names.

■ Reference pages

- Reference pages in this document are indicated by (page 00).

■ Terminology

- SD memory card, SDHC memory card, and SDXC memory card are referred to as SD memory card.
- Memory card that has the “P2” logo (such as optional AJ-P2E064FG) is referred to as “P2 memory card”.
- Memory card that has the “microP2” logo (such as optional AJ-P2M032AGN) is referred to as “microP2 memory card”.
- P2 memory card and microP2 memory card are referred to only as “P2 card” unless distinguished otherwise.
- Media such as external hard disk drives (HDD) connected to USB are referred to as “storage devices”.
- Video that is created during a single recording operation is referred to as a “clip”.

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Chapter 1 Overview

Before using the camera, read this chapter, and check the accessories.

Before using the camera

■ Caution regarding laser beams

The MOS sensor may be damaged if the MOS sensor is subjected to light from a laser beam.

Take sufficient care to prevent laser beams from striking the lens when shooting in an environment where laser devices are used.

■ Note the following points.

- When preparing to record important images, always shoot some advance test footage to verify that both pictures and sound are being recorded normally.
- Should video or audio recording fail due to a malfunction of the camera or the P2 cards used, we will not assume liability for such failure.

■ What to remember when throwing memory cards away or transferring them to others

Formatting memory cards or deleting data using the functions of the camera or a computer will merely change the file management information: it will not completely erase the data on the cards. When throwing these cards away or transferring them to others, either physically destroy them or use a data deletion program for computers (commercially available) to completely erase the data. Users are responsible for managing the data stored in their memory cards.

■ Software information about this product

1 This product includes software licensed under GNU General Public License (GPL) and GNU Lesser General Public License (LGPL), and customers are hereby notified that they have rights to obtain, re-engineer and redistribute the source code of these software.

2 This product includes software licensed under MIT-License.

3 This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).

4 This product includes software licensed under OpenBSD License.

5 This product includes PHP, freely available from <http://www.php.net/>.

6 This software is based in part on the work of the Independent JPEG Group.

Details are contained on the CD provided with the camera. Refer to the “LDOC” folder. (These details are originally provided in English.)

For details on how to obtain the source code, visit the following website.

http://pro-av.panasonic.net/

We do not accept inquiries about the details of the source code obtained by the customer.

■ Precautions when installing USB drivers

For the latest information on the driver, visit the following website.

http://pro-av.panasonic.net/

- Install the required driver into your computer from the website.
- For installation procedure of the driver, refer to the installation manual on the website.

Setting the region of use (setting frame frequency, etc.)

When the camera is shipped, the region of use is not set. Before you use the camera, follow the steps below to change the setting to the frame frequency of the region of use.

1 After connecting the power supply to the camera and turning the camera on, press the <MENU> button while holding down the <LIGHT> button.

[OPTION MENU] is displayed.

2 Use the jog dial button (or cursor buttons) to select [AREA SELECT], and select the region to be used from among [NTSC]/[NTSC (J)]/[PAL].

3 Press the jog dial button (or <SET> button).

The camera restarts automatically, and the initial data for each region is reflected in the initialization values and the setting values currently in use.

4 Select [YES] in the confirmation message, and press the jog dial button (or <SET> button).

NOTE

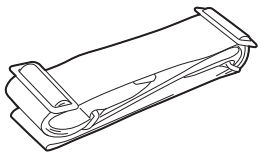
- To apply settings, select [NTSC]/[NTSC (J)]/[PAL] by [AREA SELECT], and then be sure to press the <SET> button.
- When [AREA SELECT] is changed, [AREA SET] flashes.
- When making this setting to use the camera for the first time, only the following items are changed on the camera. Menu setting values other the following items stay at their factory settings.

	Factory settings	[NTSC]	[NTSC (J)]	[PAL]
[LINE&FREQ]	[1080-59.94i]	[1080-59.94i]	[1080-59.94i]	[1080-50i]
[SETUP(7.5%)]	[ON]	[ON]	[OFF]	[OFF]
[REAR LINE IN LVL]	[4dB]	[4dB]	[4dB]	[0dB]
[AUDIO OUT LVL]	[4dB]	[4dB]	[4dB]	[0dB]
[HEADROOM]	[20dB]	[20dB]	[20dB]	[18dB]
GUI metadata language display	US English	US English	Japanese/for Japan	US English
[LANGUAGE]*	No display	No display	[ENGLISH] [JAPANESE]	No display

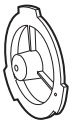
* For details, refer to “Setting metadata display language” (page 118).

Accessories

Shoulder strap (page 104)



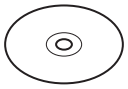
Mount cap (already attached to the product) (page 15)



CD-ROM

- Operating Instructions
- Utility software

  For installation procedures, refer to the installation manual on the CD-ROM.



NOTE

- After unpacking the product, dispose of the packing material properly.

Use of the camera on a system

Parts other than the camera are optionally available. Use the following recommended parts.

Basic configuration devices

Lenses, batteries, etc. are needed for shooting with the camera.

Part name	Part No.	Remark
Electronic HD view finder	AJ-HVF21KG	“Adjusting and setting the viewfinder” (page 83)
Electronic HD color view finder	AG-CVF10G/AG-CVF15G	“Adjusting and setting the viewfinder” (page 83)
Super-directional electret stereo microphone (phantom +48V)	AJ-MC900G	“Using the front microphone” (page 102)
Lens (Bayonet type)	FUJINON/CANON	“Mounting and adjusting the lens” (page 97)
Battery	HYTRON140*1 DIONIC HC/90*1 V-mount type battery plate • ENDURA E-10	“Mounting and setting battery” (page 94)
SD memory card*2 P2 memory card*2 microP2 memory card*2	Visit the support desk at the website*2.	“P2 card” (page 31)

*1 A battery holder is provided as standard on the main unit.

*2 For the latest information on P2 cards and SD memory cards that are not described in the Operating Instructions, visit the support desk at the following website:
http://pro-av.panasonic.net/

Expanded configuration devices

The following devices are also available in addition to the basic configuration devices.

Part name	Part No.	Remark
Remote control cable	AJ-C10050G	—
Remote control unit	AJ-RC10G	“Connecting to the remote control unit (AJ-RC10G)” (page 187)
Extension control unit	AG-EC4G	“Connecting to the extension control unit (AG-EC4G)” (page 188)
LCD monitor	BT-LH80W/BT-LH900, etc.	—
Storage device	—	—
UniSlot wireless microphone receiver	—	—
External DC power supply	—	“Using external DC power supply” (page 95)

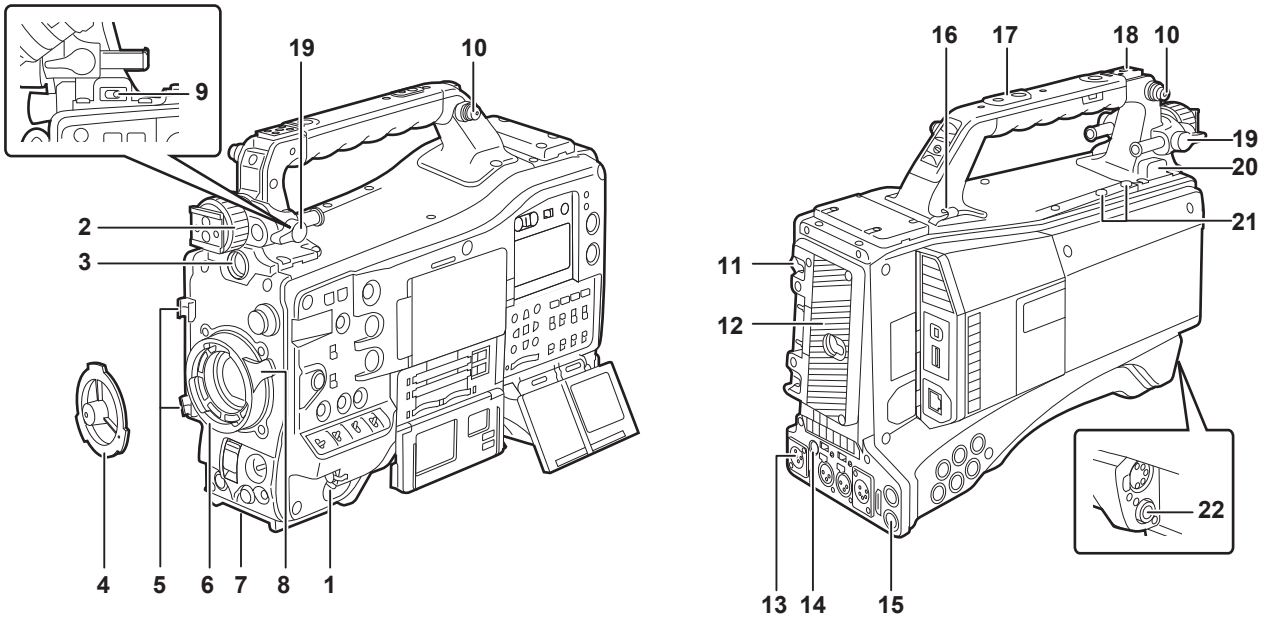
Accessories

Part name	Part No.	Remark
Soft carrying case	AJ-SC900	—
Hard carrying case	AJ-HT901G	—
Rain cover	SHAN-RC700	“Attaching the rain cover” (page 105)
Tripod adaptor	SHAN-TM700	“Mounting the camera on a tripod” (page 104)

Chapter 2 Description of Parts

This chapter describes the names, functions, and operations of parts on the camera. Details displayed on the display window are also described.

Power supply and accessory mounting section



1 <POWER> switch (page 35)
Switch used to turn on/off the power.

NOTE

- Even when the <POWER> switch is set to the <OFF> position, the camera is not shut off from the main power.

2 Viewfinder left/right positioning ring
To adjust the left/right position of the viewfinder, loosen this ring, and slide the viewfinder to the left or right to adjust it to an easy-to-view position. After adjustment, turn in the <LOCK> direction and firmly clamp.

3 <VF> terminal
Mount the viewfinder AJ-HVF21KG (optional), etc.

4 Mount cap (page 97)
Raise the lens lever to remove the cap. Replace the cap when the lens is not mounted.

5 Lens cable/microphone cable clamp (page 97)
Used for securing the lens and microphone cables.

6 Lens mount (2/3-type bayonet) (page 97)
Mount the lens.

7 Tripod mount (page 104)
Attach the optional tripod adaptor (SHAN-TM700) when mounting the camera on the tripod.

8 Lens lever (page 97)
After mounting the lens to the lens mount, tighten the lever to secure the lens.

9 <LIGHT> switch
Select how to turn on/off the video light connected to the light output terminal.

<AUTO>	When the video light is left turned on, the light is illuminated at the same time that recording starts on the camera and goes out at the same time that recording stops.
<MANUAL>	The light is illuminated according to whether the video light is turned on/off.

10 Shoulder strap fittings (page 104)
Attach the shoulder strap.

11 Battery release lever (page 94)
Pull this battery release lever down to release the battery.

12 Battery holder (page 94)
Mount the Anton/Bauer battery.

13 <DC IN> terminal (page 95)
This is the input terminal for the external power supply. Connect to the external DC power supply.

14 <DC OUT> (DC power supply) output terminal (page 106)
This is the DC12 V output terminal. It provides a maximum current of 1.5 A.

NOTE

- Make sure that polarity is correct before connecting an external device. Doing so may result in a malfunction.

15 <REMOTE> terminal (page 188) (page 187)
Connect the remote control unit AJ-RC10G (optional) to remote-control some functions.
Connect the extension control unit AG-EC4G (optional) to remote-control some functions.
The remote control function is scheduled to be supported in future upgrades.

16 Cable holders
Used for clamping the light and microphone cables in place.

17 Accessory mounting holes
Attach accessories. Do not use for purposes other than attaching accessories.
- Mounting hole size
  - 1/4-20 UNC (screw length 10 mm or shorter)
  - 3/8-16 UNC (screw length 10 mm or shorter)

18 Light shoe
Attach the video light.
- Mounting hole size
  1/4-20 UNC (screw length 6 mm or shorter)

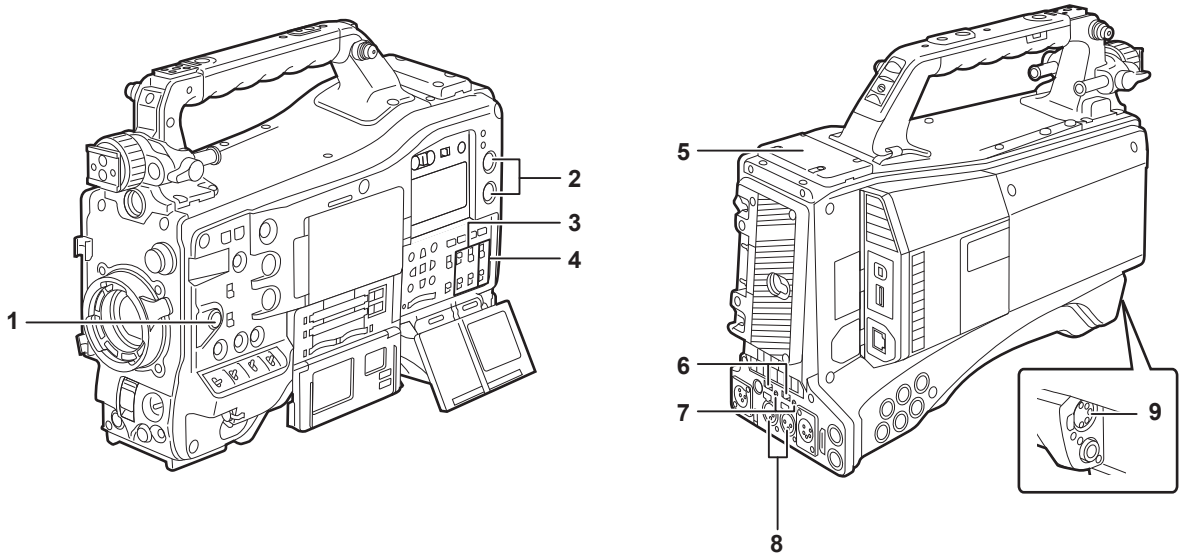
19 Viewfinder front/back position clamp lever
To adjust the front/back position of the viewfinder, loosen this lever, and slide the viewfinder to the left or right to adjust it to an easy-to-view position. After adjustment, turn in the <LOCK> direction and firmly clamp.

20 Light output terminal
Connect the Ultralight 2 of Anton/Bauer (optional) or an equivalent video light of 50 W or under.
The battery charge level drops sharply when the light is illuminated. When using the light, using a battery of 90 Wh or more is recommended.

21 Microphone holder mounting screws
Screws for mounting the microphone holder AJ-MH800G (optional) or VF interface box AG-YA500G (optional).

22 <LENS> terminal (page 97)
Connect the lens connection cable. For details of the lens used, refer to the Operating Instructions for the lens.

Audio (input) function section



1 <F.AUDIO LEVEL> (audio recording level adjustment) dial (page 59)

- Adjust the recording level of audio channels 1/2 (or 3/4).
- Set which of audio channels 1/2 or 3/4 is to be adjusted at the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT].
- When the position of the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch is at <AUTO>, adjustment is automatic, and the <F.AUDIO LEVEL> and <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dials do not function.
- Set whether to enable the <F.AUDIO LEVEL> dial at the main menu → [I/F SETUP] → [MIC/AUDIO] → [FRONT VR CH1(CH3)] or [FRONT VR CH2(CH4)].

2 <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> (audio channel 1/3, 2/4 recording level adjustment) dial

- When the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch is set to <MANU>, the recording level of audio channels 1/2 (3/4) can be adjusted by these dials.
- Set which of audio channels 1/2 or 3/4 is to be adjusted at the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT].
- These knobs have a locking mechanism, so turn the dial while pressing in when making adjustments.

3 <AUDIO IN> (audio input selector) switch

Select the input signal to be recorded to audio channel 1/2/3/4.

<FRONT>	Records the microphone input signal connected to the <MIC IN> (microphone input) terminal.
<W.L.>	Records the input signal from the wireless microphone receiver.
<REAR>	Records the audio input signal from the audio equipment connected to <AUDIO IN CH1/3> and <AUDIO IN CH2/4> (audio input channels 1/3, 2/4) terminals.

NOTE

- When the stereo microphone AJ-MC900G (optional) is used, set both <CH1> and <CH2> (or <CH3> and <CH4>) to <FRONT>. L CH is recorded to <CH1> (<CH3>), and R CH is recorded to <CH2> (<CH4>), respectively.

4 <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> (audio channel 1/3, 2/4/automatic/manual level adjustment selector) switch

Select the method to adjust the recording level for audio channel 1/2 (3/4).

<AUTO>	Adjusts automatically.
<MANU>	Adjusts manually.

- Set which of audio channels 1/2 or 3/4 is to be adjusted at the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT].

5 Wireless slot (page 102)

Mount the UniSlot wireless microphone receiver (optional).

6 <LINE>/<MIC> (line input/microphone input) selector switch (page 103)

Switch the audio input signal connected to <AUDIO IN CH1/3> and <AUDIO IN CH2/4> (audio input channels 1/3, 2/4) terminals.

<LINE>	Inputs audio signals from line-input audio equipment.
<MIC>	Inputs audio signals from the microphone.

7 Microphone input power selector switch (page 191)

Turn on/off the power supply to the microphone connected to the <AUDIO IN CH1/3> and <AUDIO IN CH2/4> (audio input channels 1/3, 2/4) terminals.

<+48V>	Supplies +48 V power to the microphone.
<OFF>	Does not supply power to the microphone.

NOTE

- When microphone input <+48V> is set and microphones are not connected to the <AUDIO IN CH1/3> and <AUDIO IN CH2/4> terminals, low-frequency noise may occur. This is not a problem when a microphone is connected.

- When [ON] is not set in the main menu → [I/F SETUP] → [MIC/AUDIO] → [REAR MIC POWER], power is not supplied regardless of the switch position.

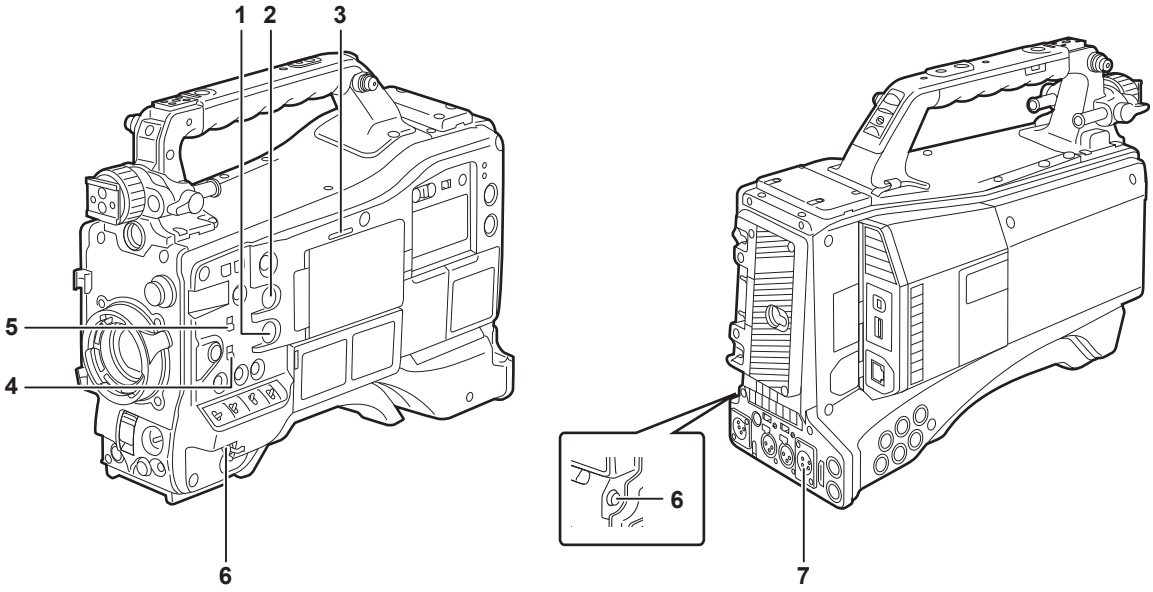
8 <AUDIO IN CH1/3>, <AUDIO IN CH2/4> (audio input channel 1/3, 2/4) terminals (page 103)

Connect the audio equipment or the microphone.

9 <MIC IN> (microphone input) terminal (page 102)

- Connect the microphone (optional).
- The phantom microphone can also be used. To use this, set [ON] in the main menu → [I/F SETUP] → [MIC/AUDIO] → [FRONT MIC POWER]. When it is set to [ON] and a microphone is not connected, low-frequency noise may occur. This is not a problem when a microphone is connected.

Audio (output) function section



1 <MONITOR> (volume adjustment) dial
Adjust the volume of the speaker and earphones.

2 <ALRAM> (alarm volume adjustment) dial
Adjust the volume of the alarm from the speaker and earphones.
When set to the minimum position, the alarm cannot be heard.

3 Speaker
During recording, EE audio can be monitored, and during playback, playback audio can be monitored.
The alarm is output in sync with flashing/lighting of the <WARNING> lamp or warning indicator.
Audio from the speaker automatically disappears when earphones are connected to the <PHONES> terminal.

4 Audio channel selector switch
Switch the audio channels output to the speaker, earphones, and <AUDIO OUT> terminal.

<CH1/2>	Outputs the signals of audio channels 1 and 2.
<CH3/4>	Outputs the signals of audio channels 3 and 4.

The channel display of the audio level meter on the display window and viewfinder are also switched interlocked to operation of this switch.

5 <MONITOR SELECT> (audio selection) selector switch
Select audio output from the speaker, earphones and <AUDIO OUT> terminal interlocked with the audio channel selector switch.

<CH1/3>	Outputs the signal of either audio channel 1 or audio channel 3.
<ST>	Outputs either the stereo audio signals of audio channels 1 and 2 or the stereo audio signals of audio channels 3 and 4. Stereo audio signals can be changed to the MIX signals in the main menu → [I/F SETUP] → [MIC/AUDIO] → [MONITOR SELECT].
<CH2/4>	Outputs the signal of either audio channel 2 or audio channel 4.

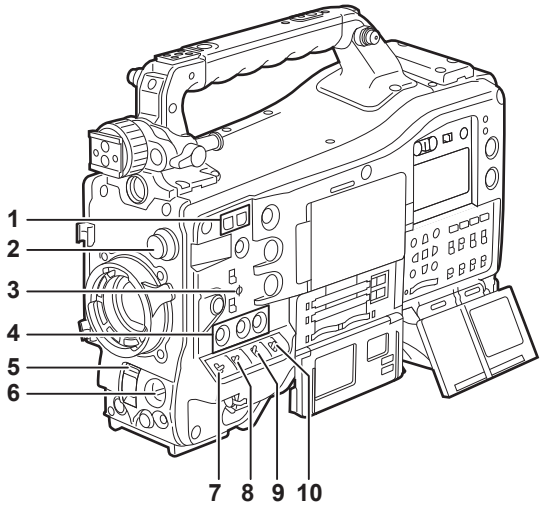
<MONITOR SELECT> (audio selection) selector switch	**Audio channel selector switch**	
	<CH1/2>	**<CH3/4>**
<CH1/3>	Audio channel 1	Audio channel 3
<ST>	Stereo output from audio channels 1 and 2*	Stereo output from audio channels 3 and 4*
<CH2/4>	Audio channel 2	Audio channel 4

* [STEREO] or [MIX] can be switched to in the main menu → [I/F SETUP] → [MIC/AUDIO] → [MONITOR SELECT].

6 <PHONES> (earphones) terminal (mini jack)
This is the terminal for connecting the audio monitor earphones. (stereo)
Audio that is output is the same on both terminals (front side, rear side)

7 <AUDIO OUT> terminal
- Output audio signals recorded on audio channel 1/2 or 3/4.
- Select output signals by the <MONITOR SELECT> selector switch.

Shooting and recording/playback functions section



■ Shooting and recording (Camera unit)

1 <SYNCHRO SCAN> adjustment button

In the synchro scan mode, the speed of synchro scan can be adjusted. Pressing the <–> button slows down the shutter speed. Pressing the <+> button speeds up the shutter speed.

For example, when taking shots of a computer monitor, adjust to a position where the noise for the horizontal bar in the viewfinder will be reduced.

2 <CC FILTER>/<ND FILTER> (filter switching) dial (page 36)

Select the filter to suit the luminance or color temperature of the subject.

Position of <CC FILTER> dial (large diameter)	Setting	Description
<A>	<3200 K>	Sets the color temperature to 3200 K.
<B>	<4300 K>	Sets the color temperature to 4300 K.
<C>	<5600 K>	Sets the color temperature to 5600 K.
<D>	<6300 K>	Sets the color temperature to 6300 K.

Position of <ND FILTER> dial (small diameter)	Setting	Description
<1>	<CLEAR>	Does not use the ND filter.
<2>	<1/4ND>	Reduces the amount of light entering the MOS sensor to 1/4.
<3>	<1/16ND>	Reduces the amount of light entering the MOS sensor to 1/16.
<4>	<1/64ND>	Reduces the amount of light entering the MOS sensor to 1/64.

Refer to the following table to switch the <CC FILTER> and <ND FILTER> dials according to the shooting conditions.

Shooting conditions	<CC FILTER> dial	<ND FILTER> dial
Sunset, sunrise, inside studio	<A> (<3200 K>)	<1> (<CLEAR>)
Outdoors in the clear skies	<B> (<4300 K>) or <C> (<5600 K>) or <D> (<6300 K>)	<2> (<1/4ND>) or <3> (<1/16ND>)
Outdoors under cloudy skies or in the rain	<D> (<6300 K>)	<1> (<CLEAR>) or <2> (<1/4ND>)
Clear, bright scenery such as snowy scenery, tall mountains, seaside	<B> (<4300 K>) or <C> (<5600 K>) or <D> (<6300 K>)	<3> (<1/16ND>) or <4> (<1/64ND>)

3 Focal plane index <ϕ>

Indicates the focal plane of the MOS sensor.

It provides a reference for making accurate focal distance measurements from the subject.

4 <USER> buttons (<USER MAIN>/<USER1>/<USER2>) (page 56)

Assign user-selected functions to each button. Pressing each button performs the assigned function.

5 <SHUTTER> switch (page 53)

Switches the electronic shutter.

<OFF>	Disables the electronic shutter.
<ON>	Enables the electronic shutter.
<SEL>	Changes the speed of the electronic shutter.

This is a spring switch. Each turn towards the <SEL> side alters the shutter speed.

6 <AUTO W/B BAL> switch (page 49)

<AWB>	Adjusts white balance automatically. When this switch is operated with the <WHITE BAL> switch on the side set to the <A> or <B> position, adjustment is performed in several seconds and adjustment values are stored in memory. Note that this does not work when the <WHITE BAL> switch is at the <PRST> position.

<ABB>	Adjusts black balance automatically. When [ON] is set in main menu → [CAMERA] → [SW MODE] → [SHD,ABB SW CTL], the automatic adjustment function for black shading can be assigned to this switch.

NOTE

- When white balance or black balance is automatically adjusted, each of these automatic adjustments is canceled by pushing the <ABB> side or <AWB> side again. The adjustment values at this time return to the values before automatic adjustment was performed.

7 <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch (page 80)

This is the spring switch to check selection of the marker and the shooting status of the camera.

<MKR>	Each time the switch is pressed towards the <MKR> side, the marker display switches in the viewfinder between [A] marker display → [B] marker display → hidden. When the power is turned on, the status before the power was turned off is displayed.
<MCK/MCL>	Each time the switch is pressed towards the <MCK/MCL> side, the six screens that indicate the setting status of the camera ([STATUS] screen, [!LED] screen, [FUNCTION] screen, [AUDIO] screen, [CAC] screen, [USER SW] screen) are switched in order in the viewfinder. This does not affect the output signals from the camera. The display goes out in about five seconds. The display of the current selected screen is continued by holding down the button. If the button is pressed towards the <MCK/MCL> side while the setting menu is displayed, this button doubles as the switch for canceling new setting values.

8 <GAIN> switch (page 49)

- Switch the video amplifier gain according to the lighting conditions under which you are shooting.
- The gain values for the <L>/<M>/<H> positions can be set by each [[S] MASTER GAIN] of [LOW SETTING], [MID SETTING], or [HIGH SETTING] in the main menu → [PAINT].
- Factory settings are L = 0 dB, M = 6 dB, and H = 12 dB.

9 <OUTPUT>/<AUTO KNEE> selector switch

Select the video signals output to the memory, viewfinder and video monitor from the camera unit.

<CAM>/<ON>	Video captured on the camera is output and the auto knee function is activated. Instead of the auto knee function, the dynamic range stretcher (DRS) function can be assigned.
<CAM>/<OFF>	Video captured with the camera is output and the auto knee function is not activated. The knee point is fixed to the level set by the main menu → [PAINT] → [KNEE/LEVEL] → [KNEE MASTER POINT].
<BARS>/<OFF>	The color bar signal is output. The auto knee function is not activated. The color bar signal can be selected from the four types in the main menu → [CAMERA] → [SW MODE] → [COLOR BARS]. (page 149)

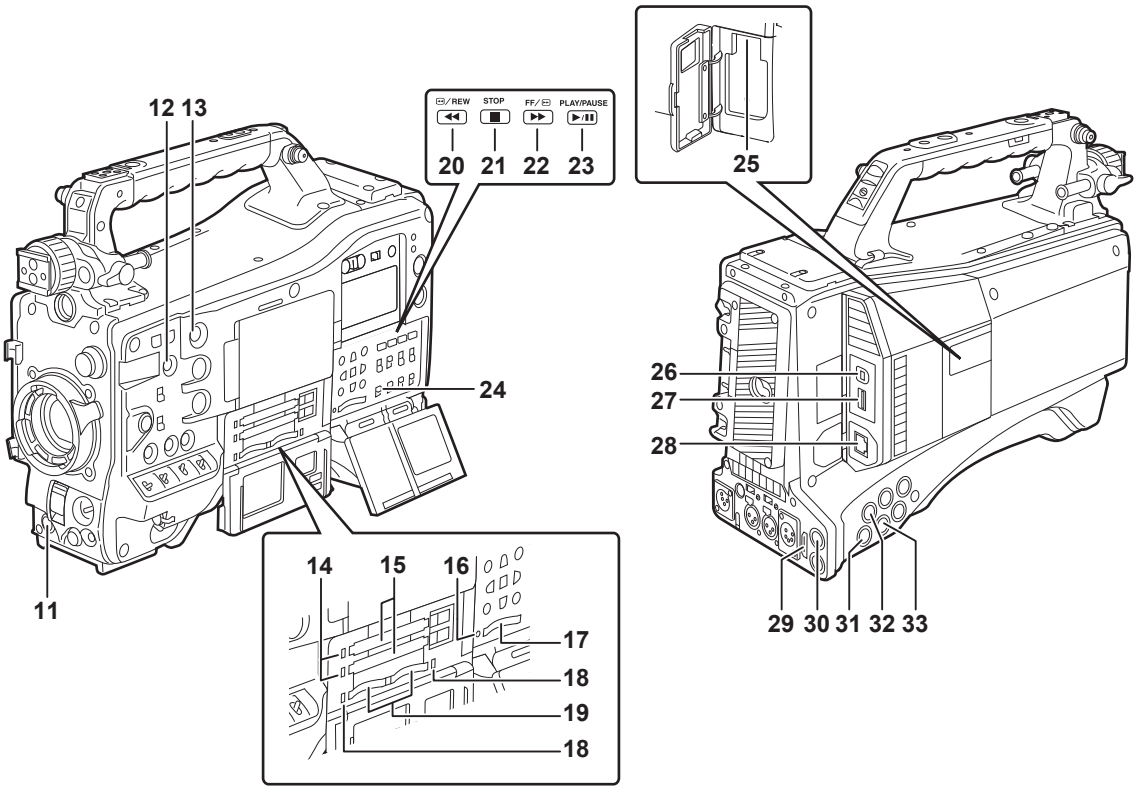
NOTE

- As the factory setting, when the <OUTPUT>/<AUTO KNEE> selector switch is set to <BARS>, and <CH1> on the <AUDIO IN> switch is set to <FRONT>, test signals are output to all four audio channels. The test signal output method can be changed in the main menu → [I/F SETUP] → [MIC/AUDIO] → [TEST TONE].
- Auto knee function
  When you adjust levels to shoot people or scenery against a strongly lit background, the background will be totally white-out, with buildings and other objects blurred. In such a case, the auto knee function reproduces the background clearly.
  The auto knee function is effective when shooting the following scenes:
  - The subject is a person positioned in the shade under a clear sky.
  - The subject is a person inside a car or a building, and you also want to capture the background visible through a window.
  - The subject is a high-contrast scene.

10 <WHITE BAL> (white balance memory selector) switch (page 49)

Select the white balance adjustment method.

<PRST>	Set the switch to this position when you have no time to adjust the white balance. • The factory setting is 3200 K. • You can change to any color temperature in the main menu → [CAMERA] → [WHITE BALANCE MODE] → [COLOR TEMP PRE]. (page 150)
<A>/<B>	Adjust automatically the white balance by pressing the <AUTO W/B BAL> switch towards <AWB> and saves the adjusted value to memory A or B. You can also assign the auto tracking white balance (ATW) function to <B> in the main menu → [CAMERA] → [WHITE BALANCE MODE] → [AWB B]. (page 50)



■ Shooting and recording/playback functions section (Recording unit)

11 <REC> button (page 37)

Recording is started by pressing this button. Recording is stopped by pressing this button again.
This button has the same function as the VTR button on the lens side.

12 <SHOT MARKER> button (page 39)

- Shot marks can be added to the thumbnail of a clip while that clip is being recorded. Thumbnails can also be selected in the LCD monitor, and shot marks can be added by pressing this button.
- The selected function can be assigned as the <USER3> button. Set the function to be assigned in the main menu → [CAMERA] → [USER SW] → [SHOT MARK (U3)].

13 <TEXT MEMO> button (page 40)

- Text memos can be recorded by pressing this button during recording/playback or while playback is paused.
- The selected function can be assigned as the <USER4> button. Set the function to be assigned in the main menu → [CAMERA] → [USER SW] → [TEXT MEMO (U4)].

14 P2 memory card access LED (page 32)

Indicate the access status of recording and playback of each card.

15 P2 memory card slot

16 Busy (active status indication) lamp (page 86)

Indicate the active status of the SD memory card, and is illuminated when the card is active.

NOTE

- Do not insert or remove the card while the lamp is lit. This might damage the SD memory card.

17 SD memory card slot (page 86)

This is the insertion slot for the SD memory card (optional). Use the SD memory card for recording/opening the setting menu and lens files for the camera, or uploading metadata or proxy recording, etc.

NOTE

- Cautions when using SD memory cards
  - On the camera, use SD memory cards that conform to the SD standard, SDHC standard, or the SDXC standard. When performing proxy recording, use SDHC memory cards, SDXC memory cards, or SD memory cards with the class description of class2 or higher.
  - MMC (Multi Media Card) cannot be used. (Bear in mind that taking pictures may no longer be possible if you use them.)
  - When using miniSD/microSD cards with the camera, always install the adaptor specially designed for miniSD/microSD cards. (The camera will not work properly if only the miniSD/microSD adaptor is installed. Make sure that the card has been inserted into the adaptor before use.)
  - Use of Panasonic SD memory cards and miniSD/microSD cards is recommended. Be sure to format cards on the camera before use.
  - Refer to our support desk at the following website for the latest information not included in these operating instructions.
    http://pro-av.panasonic.net/
  - SDHC memory cards are a standard that was established in 2006 by the SD Association for large-capacity memory cards that exceed 2 GB.
  - SDXC memory cards are a standard that was established in 2009 by the SD Association for large-capacity memory cards that exceed 32 GB.

18 microP2 memory card access LED (page 32)

Indicates the access status of recording and playback of each microP2 memory card.

19 microP2 memory card slot

20 <◀◀/REW> (rewind) button

Press this button during a pause to perform fast-reverse playback.
Press it during playback to perform fast-reverse playback at approximately 4x speed.
If it is pressed with playback paused, the clip being played back is paused at its start point (cued state).

21 <STOP> (stop) button

Press this button to stop playback.

22 <FF/▶▶> (fast forward) button

Press this button during a pause to perform fast playback.
Press it during playback to perform fast playback at approximately 4x speed.
If it is pressed with playback paused, the clip being played back is paused at the start point of the next clip (cued state).

23 <PLAY/PAUSE> (play/pause) button

Press this button to view the playback image using the viewfinder screen or the monitor screen.
Pressing it during playback pauses playback.

24 <MON OUT CHARACTER> switch (page 67)

Specifies whether characters are superimposed over the output from <SDI OUT2>, <VIDEO OUT>, and <HDMI> terminals.

<ON>	Superimposes characters.
<OFF>	Does not superimpose characters.

25 <USB2.0> terminal (sub-host)

Used in future upgrades.

26 <USB2.0> terminal (device) (page 185)

In the USB device mode, the camera can be connected to the computer by the USB 2.0 cable to transfer data. In this case, recording playback operations and camera shooting are not possible.

27 <USB3.0> terminal (host) (page 186)

In the USB storage mode, connect external hard disk drives, etc.

NOTE

- For the cable to be connected to this terminal, use the double-shielded cable.
- When connecting to a USB 3.0 compatible storage device, use a cable compliant with the USB 3.0 standard.

28 <LAN> terminal (100BASE-TX)

Used in future upgrades.

29 <HDMI OUT> (monitor output) terminal

This is the video output terminal for the monitor. Video can be output separately from the <SDI OUT1> terminal according to the setting of the main menu → [I/F SETUP] → [OUTPUT SEL] → [MONITOR OUT MODE]. The down-conversion signal can be selected in [OUTPUT SEL] → [SDI2/HDMI OUT]. Up-conversion is not supported.
Superimposing of characters can be set by the <MON OUT CHARACTER> switch independently of the <SDI OUT1> terminal. (page 67)

30 <SDI OUT1> (output) terminal

This is the output terminal exclusively for SDI. Output is performed in the same signal format as in the system mode. Down-conversion and up-conversion are not supported.
Superimposing of characters can be set independently of the <HDMI OUT>, <SDI OUT2>, and <VIDEO OUT> terminals. (page 67)

31 <SDI OUT2> (monitor output) terminal

This is the video output terminal for the monitor. Video can be output separately from the <SDI OUT1> terminal according to the setting of the main menu → [I/F SETUP] → [OUTPUT SEL] → [MONITOR OUT MODE]. HD SDI or down-converted SD SDI can be selected in [OUTPUT SEL] → [SDI2/HDMI OUT]. Up-conversion is not supported.
Superimposing of characters can be set by the <MON OUT CHARACTER> switch independently of the <SDI OUT1> terminal. (page 67)

NOTE

- As the factory setting, output of the signal from the <SDI OUT2> terminal is stopped. To enable output, set [ON] in the main menu → [I/F SETUP] → [OUTPUT SEL] → [SDI OUT2].
- During HD SDI signal output, use a 5C-FB or higher cable.

32 <SDI IN> (input) terminal

Inputs the HD/SD SDI signals. Signals from this input terminal can be recorded by setting [SDI] in the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL]. 3G-HD SDI input signals can be recorded at 1080P. For details, refer to “Selecting recording signals” (page 47).
In the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK] → [SDI IN], a generator lock can also be applied referenced to this input signal. (page 61)

NOTE

- During HD SDI signal output, use a 5C-FB or higher cable.

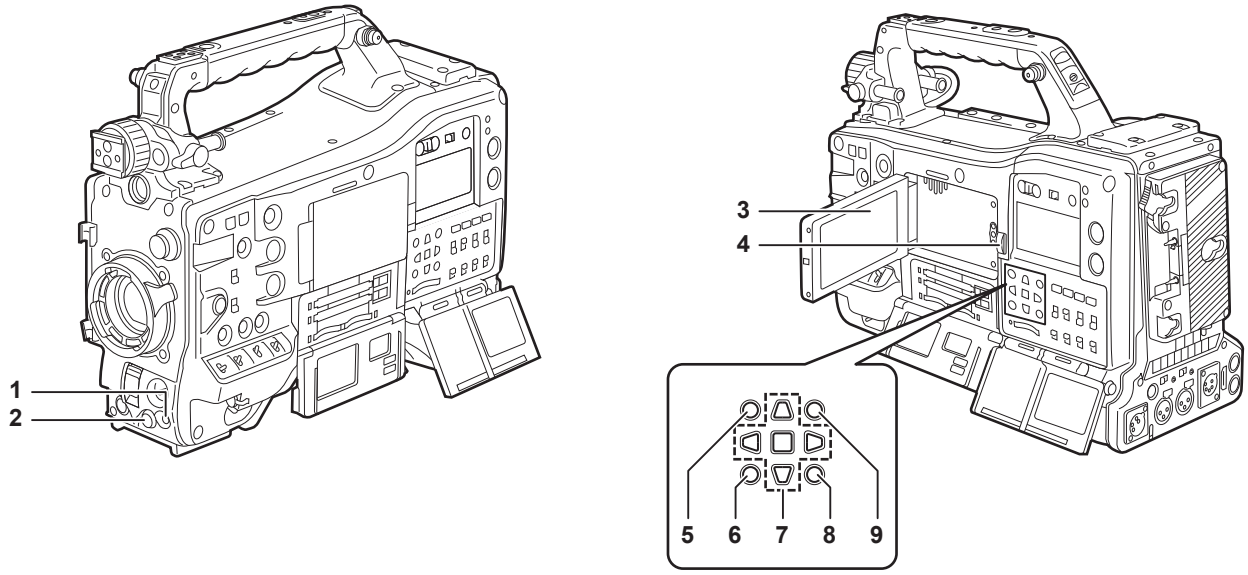
33 <VIDEO OUT> (monitor output) terminal

This is the video output terminal for the monitor. Video can be output separately from the <SDI OUT1> terminal according to the setting of main menu → [I/F SETUP] → [OUTPUT SEL] → [MONITOR OUT MODE]. The VBS signal is output at all times.
Superimposing of characters can be set by the <MON OUT CHARACTER> switch independently of the <SDI OUT1> terminal. (page 67)

NOTE

- As the factory setting, output of the signal from the <VIDEO OUT> terminal is stopped. To enable output, set [ON] in the main menu → [I/F SETUP] → [OUTPUT SEL] → [VIDEO OUT].

Menu operation section and thumbnail operation section



1 <MENU> button (page 134)

- Press this button to display [USER MENU] on the viewfinder screen. Press this button for three seconds or more to display the main menu on the viewfinder screen. Press it again to return to the original image.
- This button functions in the same way as the <MENU> button (cursor).

2 Jog dial button (page 134)

- With the setting menu open, navigate through setting menus, select items, and set values.

3 LCD monitor

Displays the video in the viewfinder. Clips on the P2 card can also be displayed as thumbnails.
During thumbnail display, clips can be operated or deleted, and P2 cards can be formatted, for example, by operating the cursor/<SET> button or operating the main menu → [CLIP].

NOTE

- The quality of the image displayed in this monitor is different from the quality of the image that is actually recorded/output to the camera. Bear this in mind, in particular, when [480-59.94i] or [576-50i] is set in the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ].
- When [480-59.94i] or [576-50i] is set in the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ], and camera video and playback video are switched, the image on the monitor is temporarily disrupted. This is not a malfunction.
- If the battery is removed or the external DC power plug is removed while the power is on, a residual image might remain in the LCD screen. This is not a malfunction. It will disappear if the screen is left as it is.
- At lower temperatures, residual images sometimes appear to increase on screen. This is not a malfunction.

4 <OPEN> button

This is used to open the LCD monitor.

5 <THUMBNAIL> button (page 110)

This switches the video in the LCD monitor from video in the viewfinder to thumbnail display of clips. Pressing this button again returns the display to the original video in the viewfinder. Button operations are disabled during recording and playback.

6 <EXIT>/<CANCEL> buttons (page 110)

Restore the display to the previous state while the setting menu or property screen is displayed.
Pressing this button while holding down the <SHIFT> button acts as the cancel button. This is convenient, for example, for batch-canceling clip selections.

7 Cursor/<SET> button (page 110)

This is used for setting time codes or user bit values, and selecting thumbnails or operating menus.
When the setting menu is displayed, it is used for selecting items or changing settings.
The four triangular buttons are the cursor buttons, and the square button in the center is the <SET> button.

8 <MENU> buttons (cursor) (page 110)

Press this button to display [USER MENU] on the viewfinder screen. Press this button for three seconds or more to display the main menu on the viewfinder screen. Press it again to return to the original image.
This button functions in the same way as the <MENU> button on the front side.

9 <SHIFT> button (page 110)

Press this button with other buttons held down at the same time.

- <SHIFT> button + cursor button (△/▽)

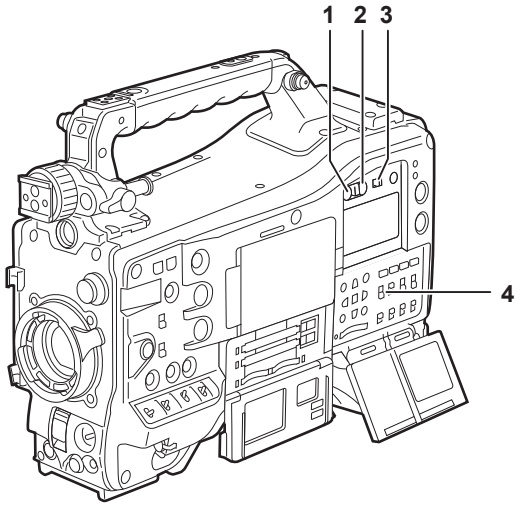
  This moves the cursor to the thumbnail of the clip at the start or the end on the thumbnail screen.
- <SHIFT> button + <SET> button

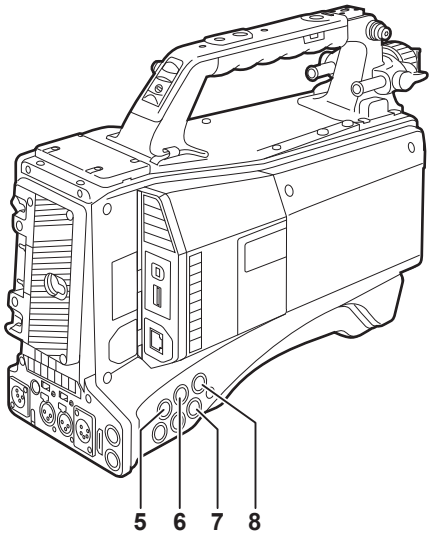
  This selects all clips from the previously selected clip up to the clip at the cursor position.
- <SHIFT> button + <EXIT>/<CANCEL> button

  This works as the cancelation function. (page 24)

Operations with the <SHIFT> button held down are displayed at the bottom of each button.

Time code section





1 <HOLD> button

The time data indication on the counter display area is retained for the duration that this button is held down. However, the time code generator continues to advance. Press the button again to release the retained state.

This function is used to learn the time code or time data of the time counter display (CTL) of a particular recorded scene.

2 <RESET> button

Resets the time data (CTL) of the time counter display to [00:00:00:00].

To return the real time data to factory settings, set the <TCG> switch to the <SET> position and press the <RESET> button. Both the time code data and user bits data are reset to 0.

3 <DISPLAY> (counter display selector) switch (page 27)

Displays the CTL, time code and user bits in the time counter display of the display window according to the setting position of the <DISPLAY> and <TCG> switches.

The shooting date, shooting time and time zone can also be displayed by pressing the <HOLD> button.

<UB>	Displays the users bits, shooting date, shooting time, and time zone.
<TC>	Displays the time code.
<CTL>	Displays CTL.

4 <TCG> (time code selector) switch

Sets the advance mode for the built-in time code generator.

<F-RUN>	Used to advance the time code continuously, regardless of the P2 card recording operation. Set to this position to, for example, set the time code to the current time or externally lock the time code.
<SET>	Used to set the time code or user bits.
<R-RUN>	Used to advance the time code only during recording. Records continuously time codes on P2 cards that have been spliced together.

5 <SDI IN> terminal (page 65)

Input reference signals when setting the generator lock on the camera unit or when externally locking the time code.

NOTE

- Be sure to set the SDI signals to input to signals of the same format selected in the system mode on the camera.

6 <GENLOCK IN> terminal (page 65)

Input reference signals when setting the generator lock on the camera unit or when externally locking the time code.

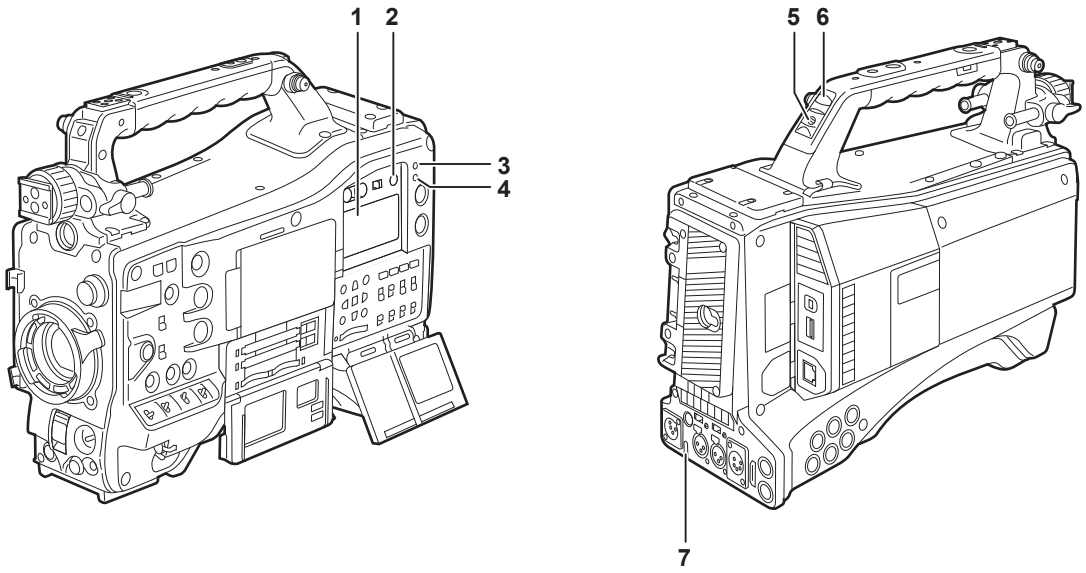
7 <TC OUT> terminal (page 65)

Connect to the time code input terminal of the external device when locking the time code of the external device to the time code on the camera.

8 <TC IN> terminal (page 65)

Input the reference time code to this terminal when the time code is locked.

Warning and status display section



1 Display window
Displays memory-related warnings, battery charge level, audio level, and time data.

NOTE

- If the camera is left with the battery attached, the various data will be displayed on the display window even if the power is turned off. To turn the display off to save the battery from wearing down, set [OFF] in the main menu → [SYSTEM] → [SYSTEM SETUP] → [P.OFF LCD DISPLAY].

2 <LIGHT> button
Controls lighting of the display window. Each press toggles lighting of the display window on and off.

3 <WARNING> lamp (page 194)
Starts flashing or is illuminated if something unusual occurs in the memory.

4 <USB> lamp
Lights when the camera is in the USB mode.

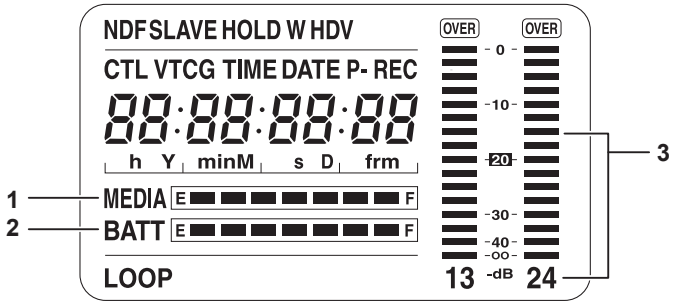
5 Back tally switch
Controls the action of the back and rear tally lamps.

<ON>	Enables the back and rear tally lamps.
<OFF>	Disables the back and rear tally lamps.

6 Back tally lamp
When the back tally switch is set to <ON>, the lamp acts in the same way as the front tally lamp at the viewfinder.

7 Rear tally lamp
When the back tally switch is set to <ON>, the lamp acts in the same way as the back tally lamp.

Description on display window



■ **P2 card, battery charge level, audio level display**

1 Media remaining space indicator bar

Indicates the remaining free space in the P2 card using a 7-segment display.

The P2 card remaining time indicated by a single segment is set in three or five minutes in the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [CARD REMAIN/Seg]. Segments go out one segment at a time at each preset time.

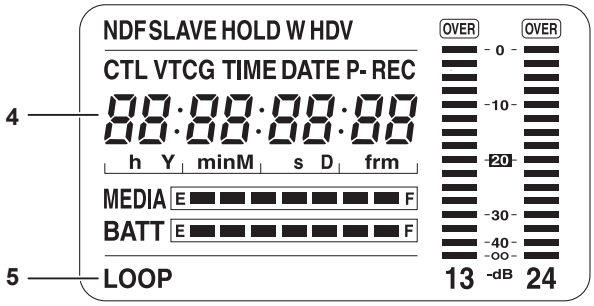
2 Battery charge level indicator bar

When a battery with a digital indication (% indication) is used, all seven segments up to the [F] position light if the battery charge level is 70% or higher.

When the battery charge level falls below 70%, the segments go out one by one for each 10% drop. When set [100%] in the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATT REMAIN FULL], seven segments can be set to light at 100%.

3 Audio channel level meter

When the audio channel selector switch is set to <CH1/2>, audio channel display numbers 1 and 2 are displayed, and the audio level of CH1 and CH2 is displayed. When <CH3/4> is set, audio channel display numbers 3 and 4 are displayed, and the audio level of CH3 and CH4 is displayed.

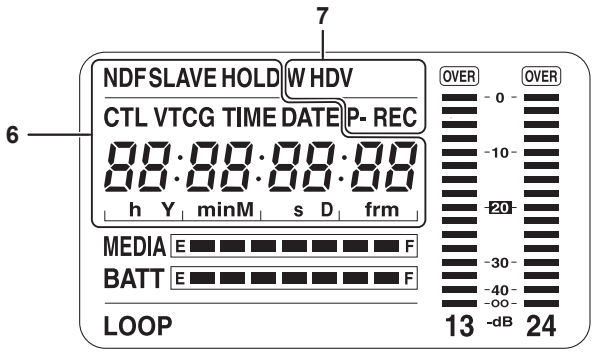


■ **Memory operation/status related display**

4 Error code display (page 196)

5 Information display

[LOOP]	Lights during loop recording, and flashes during recording standby. (page 38)



6 Time code indications

[NDF]	Indicates when the time code is in the non-drop frame mode.
[DF]	Indicates when the time code is in the drop frame mode.
[SLAVE]	Indicates when the time code is externally locked.
[HOLD]	Indicates when the time code generator/read value is held.
[CTL]	Lights when <CTL> is selected by the <DISPLAY> switch and the CTL count value is displayed.
[TCG]	Lights when <TC> (or <UB>) is selected by the <DISPLAY> switch and the TC (or UB) generator value is displayed.
[TC]	Lights when <TC> (or <UB>) is selected by the <DISPLAY> switch and the TC (or UB) reader value is displayed.
[VTCG]	Lights when <UB> is selected by the <DISPLAY> switch and the VIUB generator value is displayed.
[VTC]	Lights when <UB> is selected by the <DISPLAY> switch and the VIUB reader value is displayed.
[TIME]	Lights when <UB> is selected by the <DISPLAY> switch and the real time hours/minutes/seconds value is displayed.

[DATE]	Lights when <UB> is selected by the <DISPLAY> switch and the real time year/month/day value is displayed.
No display (time zone)	[VTCG], [TIME], and [DATE] go out when <UB> is selected by the <DISPLAY> switch and the real-time hours/minutes value of the time zone is displayed.
Time counter display	Indicates the time code, user bits, CTL, and real time.

NOTE

- When <UB> is selected by the <DISPLAY> switch, each press of the <HOLD> button repeats [VTCG] ([VTC]) → [DATE] → [TIME] → no display (time zone) → [TCG] ([TC]).

7 Mode display

[W]	Lights during operation in the SD mode (480/59.94i, 576/50i) and in the 16:9 mode.
[HD]	Lights during operation in the HD mode.
[DV]	Lights when the recording/playback format is DV.
[P-REC]	Lights when set [ON] in the main menu → [REC/PB] → [REC FUNCTION] → [PRE REC]. [P-REC] flashes when recording is continued after the tally lamp goes out.

Chapter 3 Recording and Playback

This chapter describes the basic procedure for recording and playback. It also describes special shooting methods such as pre-recording and loop recording.

Setting the date/time of the internal clock

The value of the time is recorded to content (clips) and affects the thumbnail playback order. Before recording, be sure to check and set the date and time zone.

1 Set the <DISPLAY> switch to <UB>.

2 Press the <HOLD> button several times to display the time zone (time difference from Greenwich mean time) on the display window.

For time zone display, refer to “Time code indications” (page 27) in “Description on display window”.

3 Set the <TCG> switch to <SET>.

4 Set hours/minutes (h/min) and advance (no display)/delay ([–] display) from the Greenwich mean time by the cursor buttons (△/▽).

Example) Time difference 5:00 delay (New York)
Set as [05:00 –].
The time zones are always recorded as metadata together with date/time.
Set this matched to the local time by referring to the time zone table.

5 Set the <TCG> switch to <F-RUN> or <R-RUN> to apply the time zone.

6 Press the <HOLD> button several times to display [DATE] on the display window.

7 Set the <TCG> switch to <SET>.

8 Set date (Y/M/D) by the cursor buttons.

The year setting upper limit is 2037.
▷: The digit to be set (flashing) moves to the right.
◁: The digit to be set (flashing) moves to the left.
△: The value of the flashing digit is incremented by one.
▽: The value of the flashing digit is decremented by one.

9 Press the <HOLD> button to display [TIME] on the display window.

10 Set hours/minutes/seconds (h/min/s) by the cursor buttons.

11 Set the <TCG> switch to <F-RUN> or <R-RUN>.

When this switch is switched, the internal clock starts to operate.

■ **Time zone table**

Time difference	Region	Time difference	Region	Time difference	Region	Time difference	Region
00:00	Greenwich	–06:30		+01:00	Central Europe	+07:30	
–00:30		–07:00	Denver	+01:30		+08:00	Beijing
–01:00	Azores	–07:30		+02:00	Eastern Europe	+08:30	
–01:30		–08:00	Los Angeles	+02:30		+09:00	Tokyo
–02:00	Mid-Atlantic	–08:30		+03:00	Moscow	+09:30	Darwin
–02:30		–09:00	Alaska	+03:30	Tehran	+10:00	Guam
–03:00	Buenos Aires	–09:30	Marquesas Islands	+04:00	Abu Dhabi	+10:30	Lord Howe Island
–03:30	Newfoundland	–10:00	Hawaii	+04:30	Kabul	+11:00	Solomon Islands
–04:00	Halifax	–10:30		+05:00	Islamabad	+11:30	Norfolk Island
–04:30		–11:00	Midway Islands	+05:30	Bombay	+12:00	New Zealand
–05:00	New York	–11:30		+06:00	Dakar	+12:45	Chatham Islands
–05:30		–12:00	Kwajalein Atoll	+06:30	Yangon	+13:00	
–06:00	Chicago	+00:30		+07:00	Bangkok		

NOTE

- Be sure to make this setting before using the camera for the first time. After, do not change the setting during use.
- Thumbnail operations and menu operations on thumbnail operation section are not possible while the <TCG> switch is set to <SET>.
- After setting year/month/day in step **8**, the internal clock will start if the <TCG> switch is set to <F-RUN> or <R-RUN>.
- To cancel settings while setting year/month/day, hours/minutes/seconds and time zone, set the <TCG> switch to <F-RUN> or <R-RUN> with the <SET> button held down.
- Clock accuracy is a lunar inequality of approximately ±30 seconds with the power off. When accurate time is required, check and reset the time when the power is turned on.
- The built-in clock runs for several years on the camera’s built-in lithium cell. When the lithium cell runs low, [BACKUP BATT EMPTY] will be displayed in the viewfinder when the camera is turned on. For details, refer to “Maintenance” (page 193).

P2 card

Inserting a P2 card

When using the camera for the first time, be sure to set the time data beforehand. (page 30)
Select and use either of the P2 or microP2 memory card slot on the camera.

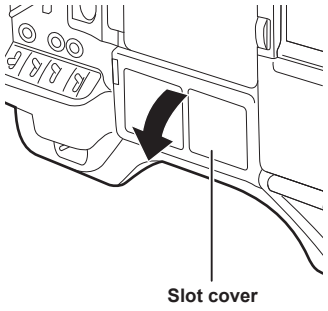


Fig. 1

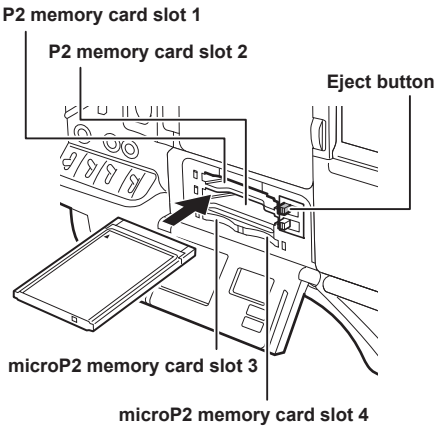


Fig. 2

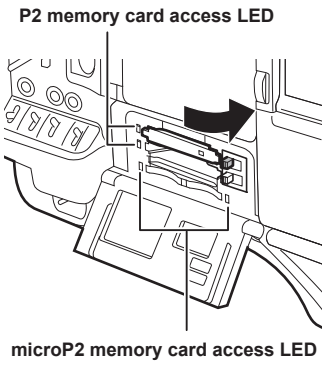


Fig. 3

1 Set the <POWER> switch to <ON>.

2 Set which of P2 or microP2 memory cards to use.

1) Select [REC MEDIA] in the main menu → [REC/PB] → [REC/PB SETUP].

2) When using P2 memory cards, select [P2], and when using microP2 memory cards, select [microP2].

3 Open the slot cover. (Fig. 1)

4 Insert a card into the card slot. (Fig. 2)

- P2 memory cards
  - Insert the card until the eject button pops out.
  - Insert the card with the logo facing up.
  - Press the eject button that pops up to the right.
- microP2 memory cards
  - Insert with the label side facing up.
  - Card in microP2 memory card slot 3 can be inserted or removed by sliding the small window on the slot cover.
- After a card is inserted, the P2 card access LED for the appropriate slot indicates the status of the P2 card. (Fig. 3) (page 32)

5 Close the slot cover.

NOTE

- To prevent cards from falling out, dust from entering and reduce the risk of exposure to static electricity, close the slot cover before moving the camera.
- Be sure to format P2 cards only on a P2 device.
- The microP2 memory card with the P2 card adaptor (AJ-P2AD1G) attached cannot be inserted into the P2 memory card slot on the camera.
- If SDHC/SDXC memory cards other than microP2 memory cards are used on the microP2 memory card slot, operation is not guaranteed.
- If a microP2 memory card is inserted slowly, [FORMAT ERROR!] or [NOT SUPPORTED!] may be displayed. In such a case, insert the card again.

Removing a P2 card

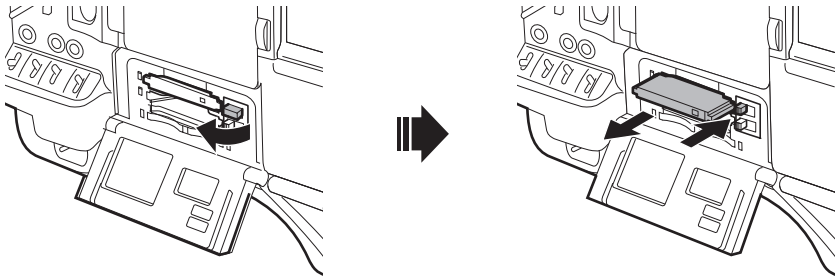


Fig. 1

Fig. 2

1 Open the slot cover.

2 Remove the card.

- P2 memory cards

- Lift the eject button (Fig. 1), and press in. (Fig. 2)

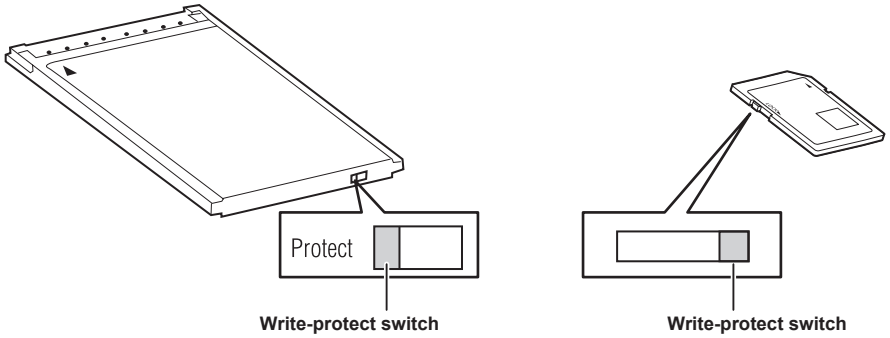
• microP2 memory cards
- Press in the microP2 card further into the camera and let go.
- The microP2 memory card is released from the card slot, and the microP2 memory card can be removed.

NOTE

- After insertion, do not remove the P2 card while it is being accessed or recognized (the P2 card access LED is flashing orange). Doing so may result in a malfunction.
- If the P2 card is removed while being accessed, [TURN POWER OFF] is displayed on the viewfinder screen, and the camera gives out a warning indication by an alarm, <WARNING> lamp, etc. All P2 card access LEDs flash rapidly in orange. Turn off the power. (page 194)
- If the P2 card is removed while being accessed, clips on it may become irregular. Check the clips and restore them, if required. (page 115)
- If the P2 card being formatted is removed, formatting of the P2 card is not guaranteed. In this case, [TURN POWER OFF] is displayed on the viewfinder screen displays. Turn off the power then back on again, and reformat the P2 card.
- If a P2 card is inserted into another slot during playback, the inserted card is not recognized and the P2 card access LED does not light. The P2 card starts to be recognized when playback ends.
- Even if a P2 card is inserted in a vacant card slot during recording, the P2 card may not be recognized immediately in the following instance:
  - Immediately after a pre-recording
  - Immediately after a recording slot is switched
- The P2 card access LED can be set to off at all times in the main menu → [REC/PB] → [REC/PB SETUP] → [ACCESS LED]. In this case, turn off the power before removing the card, or, after the card is inserted or after operation (recording, playback, etc.) has stopped, and wait for the charging to complete before removing the card.

Preventing accidental erasure

To prevent the content of a P2 card from being accidentally erased, set the write-protect switch on the P2 card to the Protect (or LOCK) position.



NOTE

- Write-protect switch can be switched while the card is being accessed (during recording or playback), but does not take effect until accessing of the card stops.

P2 card access LEDs and status of P2 cards

P2 card access LED	P2 card status		Mode check display*
Is illuminated green	Recording possible	Reading/writing are both possible.	[ACTIVE]
Is illuminated orange	Recording target	Reading/writing are both possible. The card is currently the recording target (including loop recording).	[ACTIVE]
Flashing orange	Accessing card	Reading/writing are currently being performed.	[ACCESSING]
Flashing orange rapidly	The card is being recognized.	The P2 card is being recognized.	[INFO READING]
Flashing green slowly	Card full	There is no free space on the P2 card. Reading only is possible.	[FULL]
	Write protect	The write-protect switch on the P2 card is at the Protect position. Reading only is possible.	[PROTECTED]
	Unrecordable card	Recording is not possible by the currently set recording format since the SD memory card, etc. is inserted. To record the card, change the recording format or use a P2 card.	[REC IMPOSSIBLE]
	Slot that is not recording target	The card is inserted in a slot that is different from the slot selected in the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA] ([P2] or [microP2])	No display

P2 card access LED	P2 card status		Mode check display*
Off	Card not supported	This card cannot be used on the camera. Replace the card.	[NOT SUPPORTED]
	Illegal format	The P2 card is not properly formatted. Reformat the card.	[FORMAT ERROR]
	No card	The P2 card is not inserted. The card is waiting to be recognized.	[NO CARD]
	Unauthenticated card	This microP2 memory card cannot be authenticated. Select the main menu → [CLIP] → [AUTHENTICATE], and enter the password. For details, refer to “Manual CPS authentication” (page 122).	[AUTH NG]
	USB non-access	The P2 card cannot be accessed since the mode is the USB device mode.	No display

* The mode check is displayed on the viewfinder screen. For details, refer to “Viewfinder status display” (page 70).

P2 card recording time

■ P2 cards supported on the camera

Optional P2 and microP2 memory cards with a capacity of 4 GB to 64 GB can be used with the camera. (As of September, 2013)

NOTE

- AJ-P2C002SG (2 GB) cards cannot be used.
- When AVC-Intra 100 in 1080/59.94P or 1080/50P mode is selected, you cannot record to the following P2 cards.
  - P2 memory cards of R, A, or E series
- The driver installed on the camera may be required to be updated depending on the type of P2 card. (page 199)
- Refer to our support desk at the following website for the latest information not included in these operating instructions.
  http://pro-av.panasonic.net/

■ P2 card recording times

(Example when a 64 GB card is used)

System mode	Recording format (codec)	Recording time
1080P	AVC-I100	Approx. 32 min
1080i	AVC-I100	Approx. 64 min
	AVC-G25	Approx. 256 min
480i, 576i	DVCPRO50	Approx. 128 min
	DV	Approx. 256 min

NOTE

- The above table shows values for regular recording. With native recording, even longer recording times are available depending on the system mode.
- In the case of 32 GB P2 cards, the recording time becomes 1/2 of the above recording times, in the case of 16 GB P2 cards, the recording time becomes 1/4, and in the case of 8 GB P2 cards, the recording time becomes 1/8.
- Indicated capacities include management and other area, so the space available for recording is less than the values in the table above.

Dividing clips recorded on P2 cards

If P2 cards with a capacity of 8 GB or more are used on the camera, recording is automatically continued as another clip when a single continuous recording time exceeds the following times. When thumbnails for clips are handled (displayed, deleted, restored, etc.) on P2 devices, they can be handled as a single clip. Clips may be displayed as separate clips in nonlinear editing software and on a computer. When recording on microP2 memory cards that exceed 32 GB using AVC-LongG codec, recording can be continued as the same clip by setting in main menu → [REC/PB] → [REC/PB SETUP] → [FILE SPLIT].

Recording format (excluding native recording)	Continuous recording time
AVC-I100 (1080P)	Approx. 3 min
AVC-I100 (1080i) DVCPRO HD	Approx. 5 min
AVC-G50 AVC-I50 DVCPRO50	Approx. 10 min
AVC-G25 DVCPRO DV	Approx. 20 min

CPS (Content Protection System)

The microP2 memory card supports the security function “Content Protection System” that allows encryption formatting to prevent data leak to third parties.

To use the CPS function, set a CPS password to the camera, and enable the microP2 memory card authentication and encryption formatting functions. An encrypted microP2 memory card will be automatically recognized between devices where the same CPS password is set, and recording and playback of the microP2 memory card are enabled. For details, refer to “Setting CPS password” (page 122).

NOTE

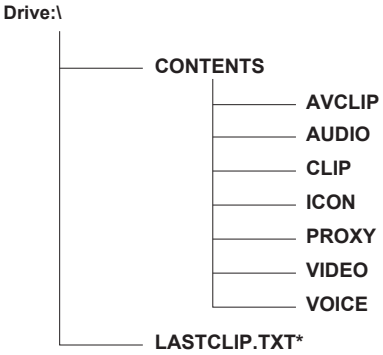
- Set or delete the CPS password in the main menu → [CLIP] → [PROPERTY] → [CPS PASSWORD].

- Up to 16 characters can be input.
- The encrypted microP2 memory card is not recognized on the SD card slot in a computer.
- If the card is unable to be recognized, authenticate with the correct password or format and use the card as recording media. Recording data on the card failed to be recognized cannot be checked. Do not perform any operation other than manual authentication and formatting with the failed card inserted.
- To access the encrypted card from a computer in USB device mode, authenticate the encrypted card with P2 Viewer Plus.

How to handle data recorded on P2 cards

P2 cards are semiconductor memory cards that are used as the recording medium in the professional video production and broadcasting devices that make up the DVCPRO P2 series.

- Since data recorded in the P2 format is in a file format, they have excellent compatibility with computers. The file structure is a unique format, which in addition to video and audio data in MXF files contains various other important information items. The folder structure links data recorded in the P2 format as shown below.



All these folders are required.

If even part of this information is modified or deleted, the data may no longer be recognized as P2 data, or the card may no longer be able to be used with P2 devices.

*** This is the file to which the information of the final clip that was recorded with the P2 device is written.**

NOTE

- P2 cards formatted on devices other than microP2 memory card compatible devices do not have the AVCLIP folder. For P2 cards without the AVCLIP folder, the folder will automatically be created when recording is performed on microP2 memory card compatible devices.
- When transferring data from a P2 card to a computer, or when rewriting data saved on a computer back to a P2 card, to prevent data loss be sure to download the special “P2 Viewer Plus” software. For details on downloading P2 Viewer Plus and the operating environment, visit the support desk at the following website:
  http://pro-av.panasonic.net/
- When using regular IT tools such as Microsoft Windows Explorer or Apple Finder to transfer data to a computer, follow the instructions below. However, be sure to use P2 Viewer Plus when returning data back to a P2 card.
  - Transfer the corresponding CONTENTS folder and LASTCLIP.TXT file together as a set.
  - Do not transfer individual files from the CONTENTS folder.
  - When copying, copy the LASTCLIP.TXT file at the same time as the CONTENTS folder.
  - When transferring the data in multiple P2 cards to a computer, create a folder for each P2 card to prevent clips with the same name from being overwritten.
  - Do not delete data from the P2 card.
  - Be sure to format P2 cards on a P2 device or P2 Viewer Plus.

Basic procedures

This section describes the basic procedures for shooting and recording. Before you actually start shooting, pre-inspect your system to ensure that it works properly. (page 190)

Power supply setup to P2 card insertion

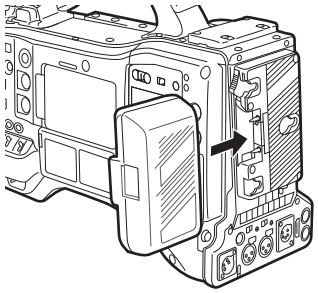


Fig. 1

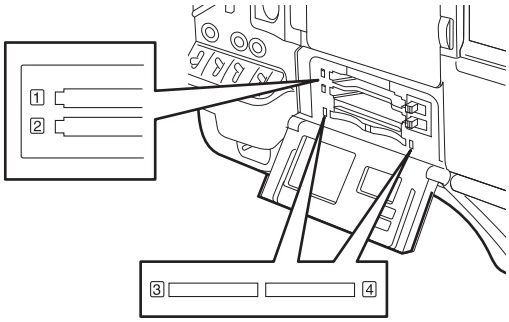


Fig. 2

1 Insert a charged battery pack. (Fig. 1)

2 Set the <POWER> switch to <ON>, and make sure that five or more levels on the battery charge level indicator bar are lit.

If five or more levels on the battery charge level indicator bar are not lit, be sure to check the battery settings. (page 163) If the settings are correct, replace with a fully charged battery.

3 Insert a P2 card, make sure that the P2 card access LED is illuminated orange or green, and then close the slot cover. (Fig. 2)

When two P2 cards are inserted in the card slots, the P2 card with the smaller slot number will be recorded to first. Note, however, that regardless of the slot number, if a P2 card is inserted later, that P2 card will not be accessed until the previously inserted P2 card has been recorded to.

- **Example: When P2 cards are inserted in two slots**

  If P2 memory cards are inserted into two slots, the P2 cards are used in the order of the slot number 1 → 2 (on the microP2 memory card slot, slot number 3 → 4). However, if the P2 card in slot number 1 (3) is removed and then re-inserted, the P2 cards will be used in the order of slot number 2 → 1 (4 → 3).

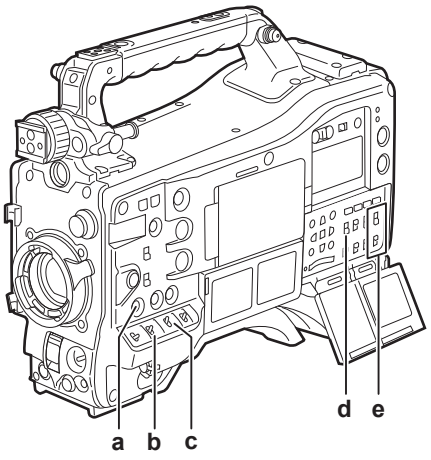
The P2 card number to be recorded to is held even if the camera is turned off. When the camera is next turned on, recording can be continued to the same P2 as before the camera was turned off.

NOTE

- If a low battery charge level is indicated even after replacing with a fully charged battery, make sure that the battery has been inserted correctly. (page 163)
- When set [SLOT 1/3] in the main menu → [REC/PB] → [REC/PB SETUP] → [P.ON REC SLOT SEL], the P2 card with the smaller slot number will be recorded to first each time that camera is turned on.
- Select which of P2 or microP2 memory card slot is to be used as the recording card slot beforehand. If the card is inserted into the slot which is not selected as the recording slot, recording is disabled.
  Select the recording slot by the following method.
  - Set the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA].
  - Press the <USER> buttons to which [REC MEDIA] is assigned to switch the selected slot.
  - Re-insert the card into the selected card slot. For details, refer to “Inserting a P2 card” (page 31).

Shooting and recording switch settings

After turning on the power and inserting the P2 card, set the switches as follows before starting operations.



a: <USER MAIN> button
Set to the card slot for recording target.

b: <GAIN> switch
Normally, set this to <L> (0 dB). If it is too dark, set the gain to an appropriate value.

c: <OUTPUT>/<AUTO KNEE> switch
Set this switch to <CAM>/<ON>.

d: <TCG> switch
Set this switch to <F-RUN> or <R-RUN>.

e: <AUDIO SELECT CH1/3>, <AUDIO SELECT CH2/4> switches
Set these switches to <AUTO>.

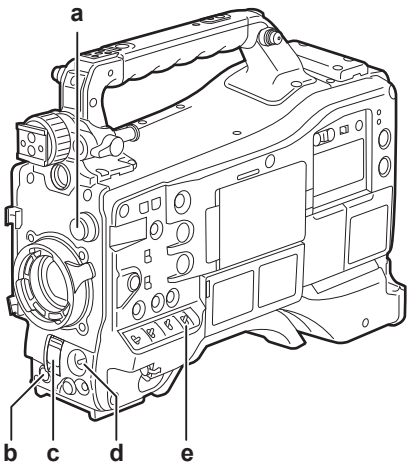
NOTE

- The [SLOT SEL] function is assigned to the <USER MAIN> button in the factory setting. You can switch to the P2 card to be recorded from two or more inserted P2 cards.
  When the P2 to record to is switched, the number of the card slot in which the P2 card to be recorded to is inserted is displayed on the P2 remaining card capacity indicator in the viewfinder. (For details on indications in the viewfinder, refer to “Configuration of status display on viewfinder screen” (page 70).)
- The [SLOT SEL] is enabled also during recording. The [SLOT SEL] indicator flashes in the viewfinder until switching of the P2 card to be recorded to is completed. If the card could not be switched immediately after recording is started or immediately after the P2 card is switched, [SLOT SEL INVALID] will be displayed.
- Switch the recording media between P2 memory cards (slots 1, 2) and microP2 memory cards (slots 3, 4) from the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA]. [REC MEDIA] can also be assigned to the <USER> button.

For shooting

White/black balance adjustment to completion of recording

For shooting, use the following steps.



a: <CC FILTER>/<ND FILTER> dial

b: <REC> button

c: <SHUTTER> switch

d: <AUTO W/B BAL> switch

e: <WHITE BAL> switch

1 Select the <CC FILTER>/<ND FILTER> dial setting according to the light conditions.

For details on setting example of the <CC FILTER>/<ND FILTER> dial, refer to “Shooting and recording/playback functions section” (page 20).

2 Operate the <WHITE BAL> switch.

■ **When white balance is already saved in memory**

- Set the <WHITE BAL> switch to <A> or <B>.

■ **When neither white or black balance is saved in memory and you have no time to adjust the white balance:**

- Set the <WHITE BAL> switch to <PRST>. The white balance matched to the filter is automatically adjusted according to the <CC FILTER>/<ND FILTER> dial setting position.

■ **To adjust the white balance on the spot:**

- Select the filter matched to the lighting conditions. Set the <WHITE BAL> switch to <A> or <B>, shoot a white test subject, and follow the steps below to adjust the white balance.

1) Press the <AUTO W/B BAL> switch towards the <AWB> side to adjust the white balance. (page 49)

2) Press the <AUTO W/B BAL> switch towards the <ABB> side to adjust the black balance. (page 51)

3) Press the <AUTO W/B BAL> switch towards the <AWB> side to adjust the white balance.

3 Point the camera at your subject and adjust the focus and zoom.

4 When using the electronic shutter, set the shutter speed and shutter mode. (page 53)

5 Press the <REC> button to start recording.

The [REC] lamp in the viewfinder is illuminated during recording.

6 To stop recording, press the <REC> button again.

The [REC] lamp in the viewfinder goes out.

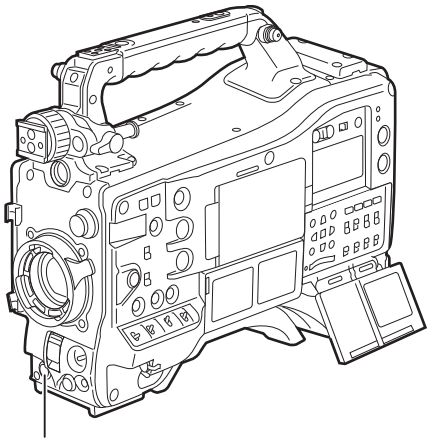
NOTE

- During recording, operation buttons (<◀◀/REW>, <FF/▶▶>, <PLAY/PAUSE>, <STOP>) do not function.
- When highly bright subjects (e.g. sun or lighting) are shot, the periphery of the subject might be colored.

Standard recording

Press the <REC> button to start recording of video and audio on the P2 card.

A data consisting of video and sound generated by a single shooting action, together with additional information, is called a “clip”.



<REC> button

NOTE

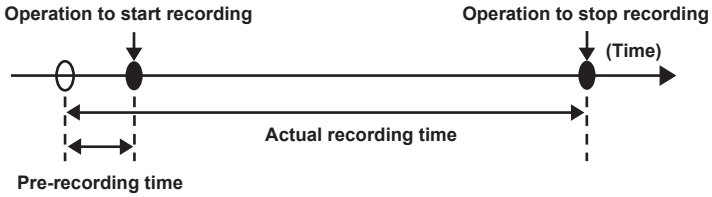
- In the following cases, it may take time to complete writing to the P2 card.
  Pressing the <REC> button does not accept operations immediately.
  - When short-burst recording is stopped
  - When stopping recording immediately after recording to the second P2 card
- Just after inserting a P2 card or turning on the power, recording is started using the internal memory of the camera. In this case, recording cannot be stopped until the P2 card is recognized.
  Push the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch three times towards the <MCK/MCL> side and check the P2 card status on the [SLOT1] and [SLOT2] rows (or, [SLOT3] and [SLOT4]) displayed on the viewfinder screen.

Special recording functions

When recording to P2 cards, the special recording functions of pre-recording and loop recording can be performed by setting on the main menu → [REC/PB] → [REC FUNCTION].

Pre-recording

This function enables recording of video and audio from a fixed amount of time (0 to 8 seconds, and max. 15 seconds in DVCPRO and DV) before recording is actually started.



1 Check the settings of each item in the main menu → [SYSTEM] → [SYSTEM MODE].

For details on system modes in which the pre-recording function can be used, refer to the table in “System modes and recording functions” (page 47).
For details on menu operations, refer to “Setting menu basic operations” (page 134).

2 Set [ON] in the main menu → [REC/PB] → [REC FUNCTION] → [PRE REC], and set pre-recording by [PRE REC TIME].

- [P-REC] is displayed at the top of the display window. (page 75)

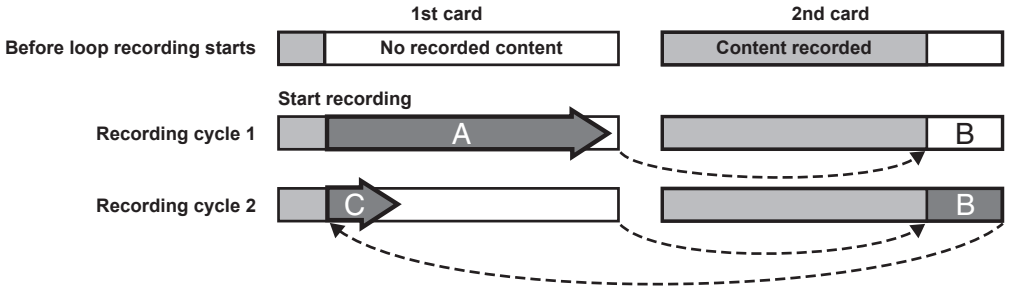
3 Press the <REC> button.

NOTE

- [P-REC] indicator when [PRE REC] is set to [OFF]
  When [PRE REC] is set to [OFF], [REC] is displayed until recording of video or audio to the P2 card is completely finished after recording is stopped.
  Refer to “Information display such as pre-recording” (page 75) for information about the [P-REC] indicator.
  This indicator can be turned off by setting [OFF] in the main menu → [VF] → [VF INDICATOR] → [P-REC/i-REC].
- Press the <USER> button to which [PRE REC] is assigned to simply toggle between [PRE REC] [ON]/[OFF]. For details, refer to “Assigning functions to <USER> buttons” (page 56).
- Video and audio according to the preset time sometimes cannot be recorded in the following cases:
  - Immediately after the power is turned on
  - After recording-related settings have been altered in the setting menu
  - Immediately after the P2 card is inserted
  - After playback or recording check is performed
- The pre-recording function does not function in the following cases:
  - When an item other than [NORMAL] is selected in the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING]
  - When [SDI] is selected in the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL]
  - When [1080-59.94P] or [1080-50P] is selected in the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ]

Loop recording

- This function successively records to two P2 cards inserted in the card slots.
- When there is no more free space on the card, recording returns to the first card, and recording is continued while erasing existing data already saved on that card.
  For details, refer to “Dividing clips recorded on P2 cards” (page 33).



1 Check the settings of each item in the main menu → [SYSTEM] → [SYSTEM MODE].

For details on system modes in which the loop recording function can be used, refer to the table in “System modes and recording functions” (page 47).
For details on menu operations, refer to “Setting menu basic operations” (page 134).

2 Set [LOOP] in the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING].

3 Set the following related items in the main menu → [REC/PB] → [REC FUNCTION].

- [HOLD]: Holding the [REC FUNCTION] setting after the power is turned off

4 Press the <REC> button.

- Recording is started.
- To stop recording, press the <REC> button.
- To clear settings, either turn off the power or set [NORMAL] in the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING].
- [LOOP] is displayed in the P2 remaining card capacity at the bottom of the display window and top of the viewfinder. The [LOOP] indicator flashes when loop recording is not possible due to insufficient memory.

NOTE

- When this function is used, each P2 card must have at least one minute of free space.
- The standard recording time in accordance with the recording format is displayed as the P2 card remaining capacity displayed in the mode check screen of the display window or viewfinder. When loop recording is stopped immediately after an old recording is erased, the time recorded on the card is sometimes less than the indicated time.
- When set [SDI] in the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL], loop recording will not function.
- Pre-recording is disabled.
- It may take time for recording to stop. The subsequent operation is not accepted until the P2 card access LED stops flashing and stays illuminated.
- During loop recording, all P2 card access LEDs on the P2 cards used for recording are illuminated or flash orange. Note that loop recording stops when these P2 cards are removed.
- Loop recording may stop when the input reference signal of the generator lock is disrupted during loop recording.

Hot swap recording

When P2 cards are inserted into two card slots, recording can be performed continuously across two cards.

Also, the card other than the one currently being recorded to can be swapped and recording can be continued on two or more cards. (hot swap recording function)

Note, however, P2 card recognition might slow down depending on the timing (immediately after pre-recording or before and after continuous recording across two card slots) that the P2 card is inserted into the vacant card slot. When inserting a P2 card, make sure that there is at least one minute of free space on the card to be recorded to.

NOTE

- Hot swap playback is not supported.

Recording check function

- After recording ends, pressing the <RET> button on the lens automatically plays back the last few seconds of the latest clip.
  In this way, you can check whether video has been recorded properly. After playback, the camera is again ready to start recording.
- The recording check function can be assigned to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>). Set [USER MAIN], [USER1], [USER2], [SHOT MARK (U3)], or [TEXT MEMO (U4)] to [RET SW] in the main menu → [CAMERA] → [USER SW].
- Holding down the <RET> button for one second plays back from the last ten seconds of the latest clip. During playback at recording check, pressing the <RET> button again stops the playback.

NOTE

- Set [REC CHECK] in main menu → [CAMERA] → [SW MODE] → [RET SW].
- When [SDI OUT1 MODE] or [MONITOR OUT MODE] is set to [MEM] in the main menu → [I/F SETUP] → [OUTPUT SEL], the playback image is output not only to the viewfinder but also the video output terminal (<SDI OUT1> terminal) and the monitor output terminal (<SDI OUT2>, <HDMI OUT> and <VIDEO OUT>) during recording check. Note that when a backup device is connected and the backup image is being recorded, the playback image currently in use by the recording check function will be recorded.

Shot mark recording function

Shot mark is the mark added to the thumbnail of each clip to distinguish that clip from others.

Only clips with shot marks attached can be displayed or played back.

Adding shot marks

1 Make sure that [SHOT MARK] is set to in the main menu → [CAMERA]→ [USER SW] → [SHOT MARK (U3)].

- If it is set, the shot mark function is assigned to the <SHOT MARKER> button.
- The shot mark function can be assigned to the <RET> button. To assign the function to the <RET> button, set [SHOT MARK] in the main menu → [CAMERA] → [SW MODE] → [RET SW].

2 During recording or a pause after recording, press the button to which the shot mark is assigned.

- [MARK ON] is displayed, and the shot mark is added to the most recently recorded clip.
- Another press of the button displays [MARK OFF] and the shot mark disappears.

NOTE

- When the shot mark is added during a recording pause, it is added to the clip recorded immediately before.
- Shot marks can also be added while the thumbnail is being displayed. (page 113)
- Shot marks cannot be added during loop recording. If an operation is invalid, [SHOT MARK INVALID] is displayed when the button is pressed.
- During playback, setting or canceling the shot mark is not available. While pausing the playback, setting or canceling the shot mark is available.
- To add shot marks to combined clips, such as those recorded over multiple P2 cards, or delete them, there are following restrictions.
  - All P2 cards constituting clips must be inserted into the slots.
  - A shot mark is added only to the top clip among combined clips.

Text memo recording function

Text memos can be added to any video point while a clip is being recorded or played back.

Only clips with a text memo added can be selected and displayed as thumbnails. Also, thumbnails at text memo positions can be displayed in order and played back from text memo points, and only required portions can be selected and copied. (page 113)

Adding text memos

1 Make sure that [TEXT MEMO] is set to in the main menu → [CAMERA] → [USER SW] → [TEXT MEMO (U4)].

- If it is set, the text memo function is assigned to the <TEXT MEMO> button.
- The text memo function can be assigned to the <RET> button. To assign the function to the <RET> button, set [TEXT MEMO] in the main menu → [CAMERA] → [SW MODE] → [RET SW].

2 During recording or a playback, press the button to which the text memo is assigned.

[TEXT MEMO] is displayed, and the text memo is added to the video clip that was displayed when the button was pressed.

NOTE

- Up to 100 text memos can be recorded to a single clip.
- Text memos cannot be added during loop recording. If an operation is invalid, [TEXT MEMO INVALID] is displayed when the button is pressed.

Proxy recording

The camera supports high-resolution proxy video recording.

The materials recorded with the camera can be converted to a compressed data file to save into a different area than that of the original materials. Refer to “Multi formats” (page 47) for information on the recording format where proxy recording is available.

Video can be saved in high-resolution H.264/AVC format as well as MPEG4 format. For audio, besides AAC format, uncompressed audio (LPCM) is supported.

In addition to the traditional MPEG4 format, the MOV format more suitable for nonlinear editing is available.

Video files, audio files, and real-time metadata file (time code, user bits) can be recorded to the P2 card and SD memory card at the same time.

The recorded materials can be saved as a smaller data file to allow efficient clip check or editing.

Proxy settings

Setting menu

To record proxy data on the camera, set → [REC/PB] → [PROXY SETUP].

Item	Description of settings		Remark
[REC MEDIA]	Selects media for recording proxy data.		—
	[P2]	Records proxy data to the P2 card.	
	[P2&SD]	Records proxy data to both the P2 card and SD memory card.	
	[OFF]	Does not record proxy data.	
[REC MODE (HD)]	Sets the proxy data recording mode (in the HD mode). For details on each mode, refer to “Recording modes and recording signals (video/audio)” (page 41). **[STD 2CH MP4], [SHQ 2CH MOV], [HQ 4CH MOV], [HQ 2CH MOV], [LOW 2CH MOV]**		—
[TC SUPER]	Sets whether to superimpose time code display on the proxy data recorded images.		—
	[UPPER]	Superimposes the time code display at the top of the recorded images.	
	[LOWER]	Superimposes the time code display at the bottom of the recorded images.	
	[OFF]	Does not superimpose time code display on recorded images.	
[PROXY DISP]	Sets whether to display proxy information.		—
	[ON]	Displays a message.	
	[OFF]	Does not display a message.	

____ are factory settings.

- Proxy data cannot be recorded in the following modes.
  - Loop recording
  - In SD mode (480/59.94i, 576/50i)

Checking the setting status

Push the <MODE CHECK/MENU CANCEL> switch on the camera towards the <MCK/MCL> side three times to check the menu values of [REC MEDIA], [REC MODE (HD)], and [TC SUPER] with the mode check function.

Checking the version information

The version of proxy recording software on the camera can be displayed in the main menu → [SYSTEM] → [VERSION] → [PROXY SOFT].

Recording modes and recording signals (video/audio)

■ **Video**

Recording mode	File format	Resolution	Codec	Frame rate	Bitrate
[STD 2CH MP4]	MP4	320×240 (QVGA)	MPEG-4 Simple Profile	30 fps/24 fps/25 fps	1500 kbps
[SHQ 2CH MOV]	MOV	960×540	H.264 High Profile	30 fps/25 fps	3500 kbps
[HQ 2CH MOV]	MOV	640×360	H.264 High Profile	30 fps/25 fps	1500 kbps
[HQ 4CH MOV]	MOV	640×360	H.264 High Profile	30 fps/25 fps	1500 kbps
[LOW 2CH MOV]	MOV	1080i mode 480×270	H.264 Baseline Profile	30 fps/25 fps	800 kbps
		1080/59.94P mode 320×180 1080/50P mode 320×180		60 fps/50 fps	

■ **Audio**

Recording mode	File format	Codec	Number of channels	Bitrate per channel	Sampling frequency
[STD 2CH MP4]	MP4	AAC-LC	2ch	64 kbps	24 kHz

Recording mode	File format	Codec	Number of channels	Bitrate per channel	Sampling frequency
[SHQ 2CH MOV]	MOV	LPCM	2ch	768 bps	48 kHz
[HQ 2CH MOV]	MOV	AAC-LC	2ch	64 kbps	48 kHz
[HQ 4CH MOV]	MOV	AAC-LC	4ch	64 kbps	48 kHz
[LOW 2CH MOV]	MOV	AAC-LC	2ch	64 kbps	48 kHz

Recording the proxy data

Select [P2] or [P2&SD] in the main menu → [REC/PB] → [PROXY SETUP] → [REC MEDIA] and press the <REC> button to start proxy recording at the same time as recording of the sources.

Push the <MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side three times to display the proxy data recording information on the viewfinder screen.

Recording to the SD memory card

To record the proxy data, use SD, SDHC, or SDXC memory cards with an indication of class2 or higher. For the latest information not included in these Operating Instructions, refer to the support desk at the following website.

http://pro-av.panasonic.net/

When recording the proxy data to an SD memory card, always format the card using the camera.

Checking the SD memory card

1 Insert the SD memory card into the camera.

2 Select the main menu → [FILE] → [SD CARD PROPERTY] (or the main menu → [CLIP] → [PROPERTY] → [SD CARD]).

- The format status is displayed in [SD STANDARD].
  If [NOT SUPPORTED] is displayed, format the card with the camera.
- In the [PROXY REM] item, check the remaining recording time of the proxy data.
  The remaining SD memory card capacity displayed ([PROXY REM]) indicates the remaining proxy recording, but it may differ from the actual available space. If short recordings are repeated, the available recording time may decrease significantly compared to the available space. When the remaining capacity exceeds 999 min, [999min] is displayed.
  If the proxy is not recorded to the SD memory card, the remaining time is not displayed.
- In the [NUMBER OF CLIPS] item, check the number of clips recorded in the SD memory card.
  If the number of clips is 1000 or more, no additional proxy data can be recorded to the SD memory card even if there is available capacity.
- Shot marks and text memos cannot be added to the clips in the SD memory card,
- Deleting the clips recorded on the P2 card on the thumbnail screen does not delete the proxy data recorded on the SD memory card.
- The proxy data cannot be recorded to the SD memory card containing data for updating.

NOTE

- While recording to the SD memory card, the remaining capacity can be checked with the mode check on the viewfinder screen.
- If proxy data cannot be recorded to the SD memory card even when the main menu → [REC/PB] → [PROXY SETUP] → [REC MEDIA] → [P2&SD] is set, [SD WR ERR] is displayed. In that case, check the SD memory card. For details, refer to “Error displays about proxy data recordings” (page 43).
- Data deleted as a result of formatting cannot be restored. Always check the data before formatting.

Formatting SD memory cards

1 Insert the SD memory card into the camera.

2 Select [YES] in the main menu → [FILE] → [FORMAT SD CARD].

This completes formatting the SD memory card.

Proxy data recording time (approximate)

Recording mode	Total recording rate	Recording time (per 1 GB)
STD 2CH MP4	Approx. 1650 kbps	Approx. 78 min
SHQ 2CH MOV	Approx. 5060 kbps	Approx. 25 min
HQ 2CH MOV	Approx. 1650 kbps	Approx. 78 min
HQ 4CH MOV	Approx. 1780 kbps	Approx. 72 min
LOW 2CH MOV	Approx. 950 kbps	Approx. 135 min

(These are reference values for continuous recording with Panasonic products. The recording time may differ depending on the scene or the number of clips)

Checking the proxy data

- The [P] indicator is displayed for the material clips with the proxy data recorded.
- The detailed information of the recorded proxy data can be viewed in the clip property.
  For details on operations, refer to “Checking detailed information of the proxy data” (page 43).
- The proxy data is recorded to the P2 card or SD memory card as a video/audio file and real-time metadata file.

- Video/audio file:XXXXXXXX.MP4 or XXXXXXXX.MOV
- Real-time metadata file:XXXXXXXX.BIN
  The time code, user bits, and information are recorded to the frame unit.

Use P2 Viewer Plus to check the proxy data. Some versions of P2 Viewer Plus may not be able to check the data.

For information on P2 Viewer Plus, visit the following website:

http://pro-av.panasonic.net/

NOTE

- Clips with proxy data recorded with the camera are handled as unknown clips by some P2 devices. [NG] (unknown clip indicator) is displayed on the thumbnail, and the following operations become unavailable. (Except in the [STD 2CH MP4] mode)
  - [DELETE]
  - [REPAIR CLIP]
  - [RE-CONNECTION]
  - [COPY]
  - [EXCH. THUMBNAIL]
  - Adding and deleting [TEXT MEMO] and [SHOT MARK]

  Playback is possible.
  On these devices, individual clips with proxy data combined from multiple clips are displayed as an incomplete clip [!]. (Except in [STD 2CH MP4] mode)

Checking detailed information of the proxy data

Operation methods and panels may differ by version.

1 Press the <THUMBNAIL> button.

The thumbnail screen appears on the viewfinder screen.

2 Select [CLIP PROPERTY] in the main menu → [CLIP] → [PROPERTY].

The clip property screen is displayed.

3 Use the cursor buttons to select [PROXY].

4 Press the <SET> button.

Detailed information about the proxy data is displayed as below.

■ **Detailed information about proxy data**

[FORMAT]	The file format of the recorded data is displayed.
[VIDEO CODEC]	Video codec information of the recorded data is displayed.
[VIDEO FRAME RATE]	Video frame rate information of the recorded data is displayed.
[VIDEO BIT RATE]	Video bitrate information of the recorded data is displayed.
[VIDEO RESOLUTION]	The video resolution of the recorded data is displayed.
[ASPECT RATIO]	The aspect ratio of the recorded data is displayed.
[TC SUPER]	An indication whether the TC (time code) display is superimposed over the recorded video.
[AUDIO CODEC]	Audio codec information of the recorded data is displayed.
[AUDIO BIT RATE]	Audio bitrate information of the recorded data is displayed.
[AUDIO SAMPLING RATE]	Audio sampling rate information of the recorded data is displayed.
[NUM.OF AUDIO CH]	The number of audio channels of the recorded data is displayed.

Error displays about proxy data recordings

If an error occurs during recording the proxy data, check the entries in the following table and take necessary actions.

Error displays (viewfinder screen)	Behavior and cause	Action to take
[PROXY ERROR] or [PROXY REC WARNING]	Proxy data recording will stop, but recording of the material will continue. • An error occurred in the internal proxy module. [PROXY ERROR] • A proxy data recording error occurred. [PROXY REC WARNING] • If a proxy data recording error occurs, the proxy data currently being recorded will be processed as below: - The proxy data being recorded to the P2 card will be deleted. - The proxy data being recorded to the SD memory card will not be restored.	The proxy data will not be properly recorded. Turn the camera off and turn it on again to check the recording and playback. If the error continues to occur, please consult your dealer.
[SD 0 min]	Recording of the materials and proxy data will continue. • The remaining SD memory card capacity is getting low. (approximately shorter than one minute)	After finishing recording, insert a new SD memory card.

Error displays (viewfinder screen)	Behavior and cause	Action to take
[SD END]	Proxy data recording to the SD memory card will stop, but recording to the P2 card will continue. • No SD memory card capacity remains.	After finishing recording, insert a new SD memory card. • The proxy data being recorded to the SD memory card will be deleted. To restore the deleted proxy data, select clips in the P2 card and copy them to the SD memory card. (page 44)
[SD WR ERR]	Proxy data recording to the SD memory card will stop, but recording to the P2 card will continue. Even if the main menu → [REC/PB] → [PROXY SETUP] → [REC MEDIA] is set to [P2&SD], this is displayed when proxy data cannot be recorded to the SD memory card. ■ **If the error message is displayed when recording starts:** • The SD memory card format is different. • The SD memory card contains 1000 clips or more. • An attempt is made to record to an SD memory card containing data for updating the firmware of the camera. ■ **If the error message is displayed during recording:** • The SD memory card was ejected during recording. • An error occurred in recording to the SD memory card.	Check the status of the SD memory card and insert a recordable card. (page 42)
[SD --min] or [SD WP]	Proxy data will not be recorded to the SD memory card, but recording to the P2 card will be performed. • No SD memory card is inserted. [SD --min] • The SD memory card is write-protected. [SD WP]	Check the status of the SD memory card.

Copying proxy data to the SD memory card

1 Press the <THUMBNAIL MENU> button to display the thumbnail screen.

2 Use the cursor buttons to move the cursor to the clip to be copied, and press the <SET> button.

3 Press the <MENU> button.

4 Select [SD CARD] in the main menu → [CLIP] → [COPY].

5 Select [YES] in the confirmation message and press the <SET> button.

NOTE

- If [SD END] is displayed and the proxy data being recorded to the SD memory card is deleted, perform this procedure to copy the proxy data from the P2 card, and enable the deleted proxy data to be restored.
- Source data is not copied.

Normal and variable speed playback

■ Normal speed playback

Color playback images can be viewed on the viewfinder screen by pressing the <PLAY/PAUSE> button. Likewise, color playback images can be viewed on a color video monitor connected to the <SDI OUT1> terminal and monitor output terminal (<SDI OUT2>, <HDMI OUT> and <VIDEO OUT>).

Playback can also be paused by pressing the <PLAY/PAUSE> button during playback.

■ Fast-forward and fast-reverse playback

The <FF/▶▶> and <◀◀/REW> buttons provide 32x and 4x fast-forward and fast-reverse playback. Pressing these buttons during a stop and playback fast-forwards and fast-reverses at 32x and 4x speed, respectively.

■ Cueing clips

If the <FF/▶▶> button is pressed with playback paused, the clip being played back is paused at the start point of the next clip (cued up state). If the <◀◀/REW> button is pressed with playback paused, the clip being played back is paused at the start point of the clip currently being played back (cued up state).

NOTE

- When playing back or switching to the thumbnail screen immediately after removing or inserting the P2 card or the power is turned on, it may take time to read the clip information. During this time, [UPDATING..] is displayed on the thumbnail screen.
- If a P2 card is inserted while another card is being played back, the clips on the inserted card cannot be played back. A P2 card inserted during playback is recognized after playback ends.
- When playing back clips spread over multiple P2 cards at variable speed, audio might be instantaneously interrupted, though this is not a malfunction.
- To play back clips in the different system modes, match [LINE&FREQ] to the format of the clip in the main menu → [SYSTEM] → [SYSTEM MODE] and set the camera again.
- Audio of CH5 to CH8 recorded on another device cannot be played back.

Chapter 4 Adjustments and Settings for Recording

This chapter describes adjustment of white and black balance and adjustment of flash band compensation (FBC) function and other shooting functions. It also describes how to set convenient functions for shooting such as assignment of functions to <USER> buttons (<USER MAIN>/<USER1>/<USER2>) and setting of time data.

Multi formats

Selecting recording signals

The camera can record HD (1080P, 1080i) signals in the combined format of AVC-Intra, AVC-LongG, DVCPRO HD codecs, and can record SD (480i/576i) signals in the combined format of DVCPRO50, DVCPRO, DV codecs respectively.

Recording and shooting signals can be selected in the main menu → [SYSTEM] → [SYSTEM MODE].

Setting menu screen	Setting menu item	Description of settings
[SYSTEM MODE]	[LINE&FREQ]	Select the 1080P/1080i/480i/576i signal format. If this setting has been changed, select [YES] on a confirmation message and restart the camera.
	[REC FORMAT]	Select the codec of AVC-Intra, AVC-LongG, or DVCPRO HD in the HD mode, and select the codec of DVCPRO50, DVCPRO and DV in the SD mode.
	[AUDIO SMPL RES]	Select the number of audio bits ([24BIT] or [16BIT]) when [REC FORMAT] is [AVC-I100] or [AVC-I50]. At [REC FORMAT] other than these, recording is performed at the number of audio bits fixed to 24 bits or 16 bits. For details, refer to “System modes and recording functions” (page 47).
	[REC SIGNAL]	Switch [CAM], recording of camera shooting with the camera, and [SDI], input recording from the <SDI IN> terminal.
	[ASPECT]	In the SD mode, select the video aspect ratio for recording and output.

NOTE

- When [LINE&FREQ], [REC SIGNAL], or [REC FORMAT] is changed, video or audio may be interrupted. This is not a malfunction.

System modes and recording functions

The following shows the relationship between system modes and recording functions on this camera.

- “✓” are supported, and “—” are not supported.

System mode			Recording function			
[LINE&FREQ]	**[REC FORMAT]**	**[AUDIO SMPL RES]**	**Standard recording**	**Pre-recording**	**Proxy recording**	**Loop recording**
[1080-59.94i]	[AVC-I100]	[24BIT]/[16BIT]	✓	✓	✓	✓
	[AVC-I50]	[24BIT]/[16BIT]	✓	✓	✓	✓
	[AVC-G50]	[24BIT]	✓	✓	✓	—
	[AVC-G25]	[24BIT]	✓	✓	✓	—
	[DVCPRO HD]	[16BIT]	✓	✓	✓	✓
[1080-50i]	[AVC-I100]	[24BIT]/[16BIT]	✓	✓	✓	✓
	[AVC-I50]	[24BIT]/[16BIT]	✓	✓	✓	✓
	[AVC-G50]	[24BIT]	✓	✓	✓	—
	[AVC-G25]	[24BIT]	✓	✓	✓	—
	[DVCPRO HD]	[16BIT]	✓	✓	✓	✓
[1080-59.94P]	[AVC-I100]	[24BIT]/[16BIT]	✓	—	✓	✓
[1080-50P]	[AVC-I100]	[24BIT]/[16BIT]	✓	—	✓	✓
[480-59.94i]	[DVCPRO50]	[16BIT]	✓	✓	—	✓
	[DVCPRO]	[16BIT]				
	[DV]	[16BIT]				
[576-50i]	[DVCPRO50]	[16BIT]	✓	✓	—	✓
	[DVCPRO]	[16BIT]				
	[DV]	[16BIT]				

List of recording settings and recording functions

The recording modes of the camera act as follows depending on the setting of [REC SIGNAL] in the main menu → [SYSTEM] → [SYSTEM MODE] and the setting of [RECORDING] in [REC/PB] → [REC FUNCTION]. Even in “Available” cases, recording functions are restricted in some system modes. For details, refer to the table in “System modes and recording functions”.

Setting	Recording setting (setting menu)		Recording/operation enabled/disabled			
Operation mode	**[REC SIGNAL]**	**[RECORDING]**	**Pre-recording**	**Proxy**	**Text memo**	**Shot mark**
Loop recording	[CAM]	[LOOP]	Not available	Not available	Not available	Not available
Standard recording		[NORMAL]	Available	Available	Available	Available
Input recording of SDI signal	[SDI]	Disabled	Not available			

Selecting video output

The video output method can be selected.

Video output, etc. can be selected by the setting of [OUTPUT SEL] in the main menu → [I/F SETUP] and the setting of [DOWNCON SETTING] → [DOWNCON MODE].

Menu item	Description of settings
[SDI2/HDMI OUT]	Selects the system mode signal method or down converter output for output from the <SDI OUT2> and <HDMI OUT> terminals.
[1080P SDI2/HDMI OUT]	Selects whether to convert output signals from the monitor output terminals (<SDI OUT2>, <HDMI OUT>) to 1080i at 1080P.
[3G-SDI OUT]	Selects the 3G-HD SDI signal type output from the <SDI OUT1> and <SDI OUT2> terminals from [LEVEL-A] or [LEVEL-B] at 1080P.
[DOWNCON MODE]	Selects the screen type for down conversion output (composite and SD SDI output) at 1080P or 1080i.

Selecting video output from each terminal

[LINE&FREQ]	Monitor output setting		Video output			
	[SDI2/HDMI OUT]	[1080P SDI2/HDMI OUT]	<SDI OUT1> terminal	<SDI OUT2> terminal	<HDMI OUT> terminal	<VIDEO OUT> terminal
[1080-59.94i]	[SYSTEM MODE]	—	1080/59.94i	1080/59.94i	1080/59.94i	480/59.94i
	[DOWNCON]			480/59.94i	480/59.94P	
[1080-50i]	[SYSTEM MODE]	—	1080/50i	1080/50i	1080/50i	576/50i
	[DOWNCON]			576/50i	576/50P	
[1080-59.94P]	[SYSTEM MODE]	[1080P]	1080/59.94P*	1080/59.94P*	1080/59.94P	480/59.94i
		[1080i]		1080/59.94i	1080/59.94i	
	[DOWNCON]	Disabled		480/59.94i	480/59.94P	
[1080-50P]	[SYSTEM MODE]	[1080P]	1080/50P*	1080/50P*	1080/50P	576/50i
		[1080i]		1080/50i	1080/50i	
	[DOWNCON]	Disabled		576/50i	576/50P	
[480-59.94i]	—	—	480/59.94i	480/59.94i	480/59.94P	480/59.94i
[576-50i]	—	—	576/50i	576/50i	576/50P	576/50i

* Output type can be selected from [LEVEL-A] or [LEVEL-B] in the main menu → [I/F SETUP] → [OUTPUT SEL] → [3G-SDI OUT]. This item is set to [LEVEL-B] in the factory setting.

List of recording/playback and output formats

- For details on selection of SDI OUT2 signal methods, refer to “Selecting video output from each terminal” (page 48).
- Frequencies in signal methods are annotated without fractions.
  - 59.94 → 60

System mode		Recording format	Output method	
[LINE&FREQ]	[REC FORMAT]		<SDI OUT1> terminal	<SDI OUT2> terminal
[1080-59.94i]	[AVC-I100]	1080/60i	1080/59.94i	1080/59.94i 480/59.94i
	[AVC-I50]			
	[AVC-G50]			
	[AVC-G25]			
	[DVCPRO HD]			
[1080-50i]	[AVC-I100]	1080/50i	1080/50i	1080/50i 576/50i
	[AVC-I50]			
	[AVC-G50]			
	[AVC-G25]			
	[DVCPRO HD]			
[1080-59.94P]	[AVC-I100]	1080/60P	1080/59.94P	1080/59.94P 1080/59.94i 480/59.94i
[1080-50P]	[AVC-I100]	1080/50P	1080/50P	1080/50P 1080/50i 576/50i
[480-59.94i]	[DVCPRO50]	480/60i	480/59.94i	480/59.94i
	[DVCPRO]			
	[DV]			
[576-50i]	[DVCPRO50]	576/50i	576/50i	576/50i
	[DVCPRO]			
	[DV]			

Adjusting the white and black balance

To obtain high-quality video at all times using the camera, the white and black balance must be adjusted according to conditions.

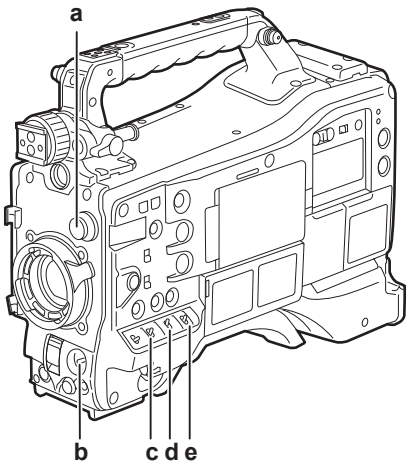
To obtain higher image quality, perform the adjustment in the order of AWB (white balance adjustment) → ABB (black balance adjustment) → AWB (white balance adjustment).

NOTE

- When white or black balance is adjusted while video is disrupted by the generator lock, adjustment may not be performed correctly. Adjust white or black balance again after video has returned to normal.

Adjusting the white balance

The white balance must be adjusted again when the lighting conditions change. Follow the steps below to adjust the white balance automatically.



a: <CC FILTER>/<ND FILTER> dial
Adjust the amount of light entering the MOS sensor.

b: <AUTO W/B BAL> switch
Use to execute the automatic white balance.

c: <GAIN> switch
Normally, set this to 0 dB. If it is too dark, set the gain to an appropriate value.

d: <OUTPUT> switch
Set this switch to <CAM>.

e: <WHITE BAL> switch
Set this switch to <A> or <B>.

■ **When the <WHITE BAL> switch is set to <A>**

1 Set the <GAIN>, <OUTPUT>, and <WHITE BAL> switches.

2 Select the <CC FILTER>/<ND FILTER> dial setting according to the light conditions.

For details on setting example of the <CC FILTER>/<ND FILTER> dial, refer to “Shooting and recording/playback functions section” (page 20).

3 Place the white pattern at a point where the light conditions match those for the light source for the subject, and zoom in on the white pattern so that the white color appears in the screen.

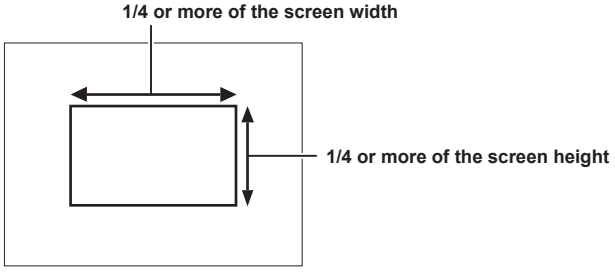
4 Adjust the lens aperture.

5 Set the <AUTO W/B BAL> switch towards the <AWB> side, and then release it.

The switch returns to the central position with the white balance automatically adjusted.

■ **White pattern**

- A white object (cloth or wall) near the subject may also be used for the white pattern.
- Required size of white pattern is as follows.



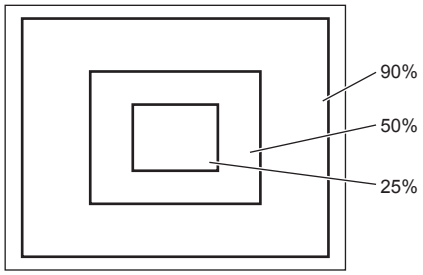
- Do not allow bright spotlights within the screen.
- The white pattern must appear at the center of the screen.

■ **Message displayed in the viewfinder screen**

During adjustment	AWB A ACTIVE	
Adjustment completed	AWB A OK 3.2K	• The adjusted value is automatically stored in the specified memory (A or B).
If the color temperature of the subject is lower than 2300 K or higher than 15000 K	AWB A OK 2.3K ↓	• If the arrow points down (↓), the actual temperature is lower than the indicated temperature, and if the arrow points up (↑), the actual temperature is higher than the indicated temperature.

Detection range of white balance

The white balance detection range can be selected from [90%], [50%], and [25%] in the main menu → [CAMERA] → [WHITE BALANCE MODE] → [AWB AREA]. The factory setting is [25%].



When you have no time to adjust the white balance

Set the <WHITE BAL> switch to <PRST>.

According the shooting conditions, turn the <CC FILTER>/<ND FILTER> dial and set the filter.

When the white balance has not been automatically adjusted

When the white balance has not been successfully adjusted, the viewfinder screen displays an error message.

Error message	Meaning	Remedy
[COLOR TEMP. HIGH]	The color temperature is too high.	Select the appropriate filter.
[COLOR TEMP. LOW]	The color temperature is too low.	Select the appropriate filter.
[LOW LIGHT]	There is insufficient light.	Increase the amount of light. Or, increase gain.
[LEVEL OVER]	There is too much light.	Decrease the amount of light. Or, decrease gain.
[CHECK FILTER]	The <CC FILTER>/<ND FILTER> dial setting is out of position.	Check the <CC FILTER>/<ND FILTER> dial.
[TIME OVER]	Automatic adjustment does not end within the time.	The shooting conditions might be unstable. If there is flickering, insert the shutter and execute again under stable conditions.

White balance memory

Values stored to memory are saved until white balance is adjusted again even if the camera is turned off. There are two white balance memories, A and B.

When set [ON] in the main menu → [CAMERA] → [WHITE BALANCE MODE] → [FILTER INH] (initial setting), memory on each of <A> and <B> is limited to one, respectively. In this case, content in memory is not interlocked with the filter.

When [FILTER INH] is set to [OFF], the adjustment values of each filter can be automatically stored to memory corresponding to the <WHITE BAL> switch setting (<A> or <B>).

The camera has four built-in filters so a total of eight (4×2) adjustment values can be stored to memory.

When the super gain function is enabled, the <AUTO W/B BAL> switch does not function and the message ([AWB UNABLE/S.GAIN MODE]) is displayed.

Viewfinder display for white balance

For details, refer to “Viewfinder status display” (page 70).

Setting the auto tracking white balance (ATW) function

The camera is equipped with the Auto Tracking White Balance (ATW) function that automatically tracks the white balance of images according to the lighting conditions.

The auto tracking white balance function can be assigned to <B> of the <WHITE BAL> switch. Select [ATW] in the main menu → [CAMERA] → [WHITE BALANCE MODE] → [AWB B].

The auto tracking white balance function can be assigned to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>).

For details, refer to “Assigning functions to <USER> buttons” (page 56).

Canceling the auto tracking white balance

Press the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) to which the auto tracking white balance function is assigned again, or select the <WHITE BAL> switch. However, when the auto tracking white balance function is set to <B> of the <WHITE BAL> switch, the function cannot be canceled with the <USER> buttons (<USER MAIN>/<USER1>/<USER2>).

NOTE

- This function does not guarantee 100% accuracy for the white balance. Note that the tracking performance relative to changes in ambient lighting and white balance performance has been given a certain degree of latitude.

Manual setting of color temperature

White balance can be adjusted manually according to the color temperature setting. The manual color temperature setting can be set for each position of <PRST>, <A> and <B> of the <WHITE BAL> switch.

For the color setting, set [COLOR TEMP PRE], [AWB A TEMP] and [AWB B TEMP] in the main menu → [CAMERA] → [WHITE BALANCE MODE].

There are two selections available for color temperature adjustment of [COLOR TEMP PRE], [VAR], and [3.2K/5.6K].

- [VAR]: This can be set from [< 2300K] to [> 15000K].
- [3.2K/5.6K]: This can be set to [3200K] or [5600K].

NOTE

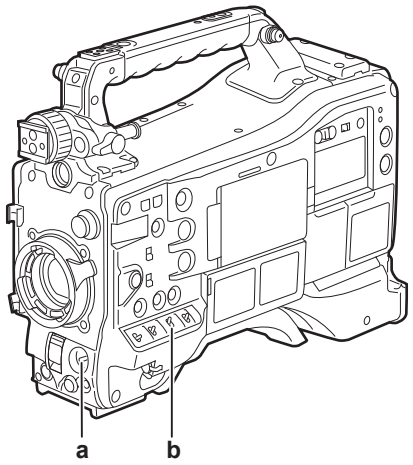
- Even if color temperature is set manually, the newly adjusted color temperature is recorded to the position of the <WHITE BAL> switch at that time if white balance is automatically adjusted. The value of the color temperature also changed when the position of the <CC FILTER> dial is switched.

Adjusting the black balance

Black balance must be adjusted in the following instances:

- When the camera is used for the first time
- When the camera has not been used for a long time
- When the ambient temperature has changed considerably
- When super gain is set using the <USER> buttons (<USER MAIN>/<USER1>/<USER2>)
- When [DS.GAIN] is assigned to [USER MAIN], [USER1], and [USER2] in the main menu → [CAMERA] → [USER SW]
- When the digital super gain assignment is changed in the main menu → [CAMERA] → [USER SW GAIN] → [DS.GAIN]

To shoot optimum video, we recommend adjusting the black balance immediately before shooting.



a: <AUTO W/B BAL> switch
Use to execute the automatic black balance.

b: <OUTPUT> switch
Set this switch to <CAM>.

1 Set the <AUTO W/B BAL> switch towards <ABB> and then release it.

The switch returns to the central position with the black balance automatically adjusted.
Adjustment is completed in several seconds.

■ **Message displayed in the viewfinder screen**

During adjustment	ABB ACTIVE	
Adjustment completed	ABB OK	• The adjusted value is automatically stored in memory.

NOTE

- Make sure that the lens connector is connected and that the lens aperture is in the close mode.
- During black balance adjustment, the aperture is set to automatically shut out light.
- During recording, black balance cannot be adjusted.

- During the automatic black balance execution, recording to the P2 card is not performed by pressing the <REC> button.
- The gain switching circuit is automatically switched during black balance adjustment. Flicker or noise sometimes appears on the viewfinder screen. This is not a malfunction.
- Even after automatic black balance has ended, if black shading is a cause of concern, select [DETECTION(DIG)] in the main menu → [MAINTENANCE] → [BLACK SHADING], and execute black shading adjustment. Alternatively, set [ON] in the main menu → [CAMERA] → [SW MODE] → [SHD,ABB SW CTL], and hold down the <AUTO W/B BAL> switch for two seconds or more to adjust black shading. [B-SHD READY] will be displayed in the viewfinder, and black shading can be automatically adjusted after the automatic black balance operation. While black shading is being adjusted, [B-SHD ACTIVE] will be displayed in the viewfinder. After this, be sure to close down the lens aperture until [B-SHD OK] is displayed in the viewfinder. Note, however, that when the remote control unit AJ-RC10G (optional) or the extension control unit AG-EC4G (optional) is connected, black shading cannot be automatically adjusted even by holding down the <ABB> switch.
- When black balance is being automatically adjusted (when [ABB ACTIVE] is displayed in the viewfinder), adjustment is canceled by pushing the <AUTO W/B BAL> switch towards <ABB> again. The adjustment values at this time return to the values before automatic adjustment was performed.

Black balance memory

Values stored to memory are saved even if the camera is turned off.

Setting the electronic shutter

Shutter mode

The shutter modes available on the camera's electronic shutter and shutter speeds that can be selected are as follows.

Using a fixed shutter speed

- To remove flicker caused by lighting
- To shoot fast-moving subjects clearly

Using the synchro scan mode

- To shoot so that stripe patterns are eliminated in the horizontal direction when shooting on the monitor screen
- To shoot moving subjects with special effects

Using the half shutter speed

- To shoot films with special effects

[LINE&FREQ]	Shutter speed	Half shutter speed	Variable range of synchro scan mode	
[1080-59.94P]	[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]	1/120	1/60.1 - 1/7200	3.0 deg - 359.5 deg (in 0.5 deg steps)
[1080-59.94i]		1/120	1/60.1 - 1/7200	
[480-59.94i]		1/120	1/60.1 - 1/7200	
[1080-50P]	[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]	1/100	1/50.1 - 1/6000	
[1080-50i]		1/100	1/50.1 - 1/6000	
[576-50i]		1/100	1/50.1 - 1/6000	

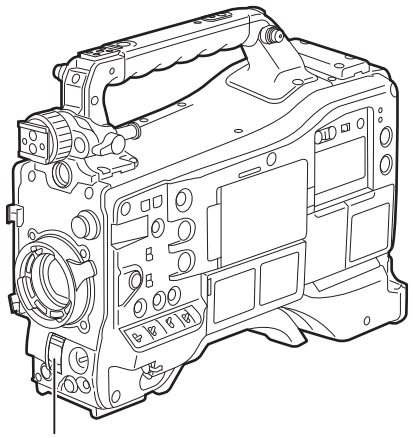
Setting the shutter mode and speed

Switch the <SHUTTER> switch to set the shutter speed in the shutter mode.

The shutter speed in the synchro scan mode can be easily change by the <SYNCHRO SCAN> adjustment button on the side.

The shutter speed selection range can be restricted or use of the synchro scan mode can be selected beforehand in the main menu → [CAMERA] → [SHUTTER SPEED] and [SHUTTER SELECT].

Once selected, the shutter speed is saved even after the camera is turned off.

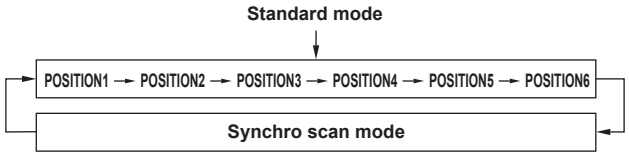


<SHUTTER> switch

1 Press the <SHUTTER> switch positioned at <OFF> towards <ON>.

2 Press the <SHUTTER> switch from <ON> towards <SEL>, and repeat this operation until the desired mode or speed is displayed on the viewfinder screen.

- If all modes and speeds are available, the display changes in the following order.



NOTE

- Whichever mode the electronic shutter is used in, the higher the shutter speed, the lower the sensitivity of the camera becomes.
- When the aperture is in the automatic mode, it will increasingly open and the depth of focus will become shallower as the shutter speed is increased.
- Under lighting conditions using fluorescent lighting or other discharge tube, horizontal stripes might appear on screen. If this happens, this can be improved by adjusting the shutter speed.

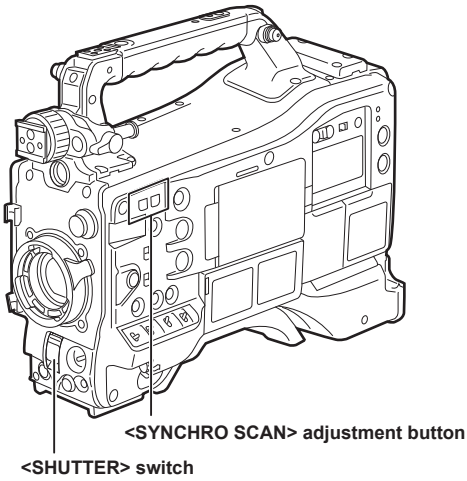
- A subject that quickly crosses the camera may appear distorted when shot. This is due to the method applied for reading the signals from the pickup device (MOS sensor), and is not a malfunction.
- Shutter mode is off while the digital super gain function is active.

Viewfinder screen display for shutter

For details, refer to “Viewfinder status display” (page 70).

Setting the synchro scan mode

Follow the steps below to operate.



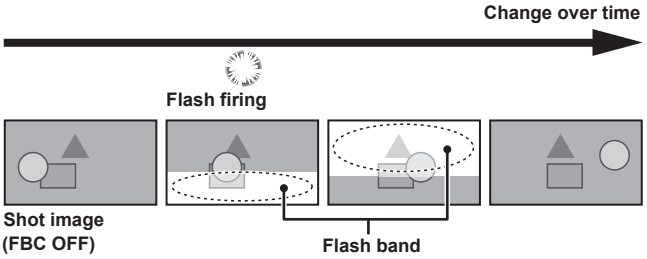
1 Press the <SHUTTER> switch from the <ON> side towards the <SEL> side to set the camera to synchro scan mode.

2 Operate the <SYNCHRO SCAN> adjustment button to switch the mode continuously.

The shutter speed display in the synchro scan mode can be switched between seconds and angle in the main menu → [VF] → [VF DISPLAY] → [SYNCHRO SCAN DISP].

Flash band compensation (FBC) function

The camera is equipped with a function for compensating and reducing band-like interference (called “flash band”) that occurs due to the MOS pickup device when shooting in environments where flash strobe light such as that from still cameras is present.

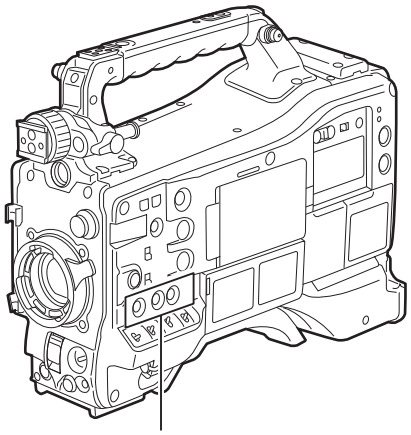


Setting the flash band compensation function

Assign the flash band compensation function to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>).

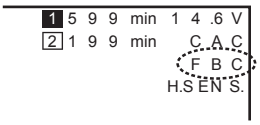
By pressing the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) that are assigned with the flash band compensation function, the function turns on, and flash strobe from a still camera, etc. can be detected and compensated.

For details, refer to “Assigning functions to <USER> buttons” (page 56).



<USER MAIN>/<USER1>/<USER2> buttons

When the flash band compensation function is enabled, [FBC] is displayed on the status screen.



NOTE

- When the flash strobe lights, the following phenomena may occur. These are due to the flash band compensation function and are not malfunctions.
  - Moving subjects look as if they have stopped suddenly.
  - The resolution when the flash strobe light drops.
  - Horizontal lines appear in the video when the flash strobe lights.

Using the flash band compensation function

The flash band compensation function is activated when there are large changes in brightness at the bottom of the screen regardless of whether there is flash strobe light. The flash band compensation function may be activated depending on the shooting environment such as where a bright window has zoomed in and then out. So, we recommend use of this function in shooting environments where flash strobe lighting is anticipated.

Even if flash strobe lighting occurs, sufficient flash band compensation function effect may not be obtained in some shooting environments.

Flash band compensation function operation conditions

- The flash band compensation function can be used under the conditions that the camera is in 59.94i, 59.94P, 50i, or 50P mode and neither of the scan reverse, digital zoom, and digital super gain functions is operated.
- Even if the flash band compensation function is enabled, the flash band compensation function is forcibly disabled if the camera is changed to a mode where the flash band compensation function cannot be used.

  To use the function again, return to a mode where the function can be used, and press the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) to turn on the flash band compensation function.

  The flash band compensation function is disabled once the power is turned off.

Assigning functions to <USER> buttons

Selected functions can be assigned to the <USER MAIN>, <USER1>, <USER2>, <SHOT MARKER>, and <TEXT MEMO> buttons.

Set the function to be assigned to each by [USER MAIN], [USER1], [USER2], [SHOT MARK (U3)], and [TEXT MEMO (U4)] in the main menu → [CAMERA] → [USER SW].

In the factory settings, [SLOT SEL] is assigned to the <USER MAIN> button, [S.GAIN] to the <USER1> button, [DS.GAIN] to the <USER2> button, [SHOT MARK] to <SHOT MARKER> the button, and [TEXT MEMO] to the <TEXT MEMO> button.

Selectable functions

Item name	Description
[INHIBIT]	Disables assignment of functions.
[S.GAIN]	Assigns the super gain function. Automatic white balance does not function while the super gain function is [ON].
[DS.GAIN]	Assigns the digital super gain function. • The digital super gain function is activated only during shooting in the 59.94P, 59.94i, 50P, and 50i. While the function is activated, the shutter becomes [OFF]. • Video at the instant that the digital super gain function is enabled or disabled becomes discontinuous.
[S.IRIS]	Assigns the super iris function. This is enabled when performing backlight compensation.
[I.OVR]	Assigns the iris override function. Changes the target value (reference value) in the auto iris mode. To change the target value, set to this mode and press the jog dial button. The target value can be changed. Turning the jog dial button to the left and right changes the target value. [+], [++], [–] or [––] is displayed on the left side of the iris display area on the viewfinder screen. Stop turning the jog dial button at the position to change the target value and press the jog dial button to apply the new target value setting. The reference value is returned when this mode is canceled or the power is turned off. [+]: Opens aperture by about 0.5. [++]: Opens aperture by about 1. [–]: Closes aperture by about 0.5. [––]: Closes aperture by about 1. No display: Reference value
[S.BLK]	Assigns the super black function. This is the function for lowering the black level to the pedestal level or below.
[B.GAMMA]	Assigns the black gamma function. This function enhances the black tones. [BLACK GAMMA]: [6] and [B. GAMMA RANGE]: [3] are set regardless of the value that was set by selecting [BLACK GAMMA] in the main menu → [PAINT] → [LOW SETTING], [HIGH SETTING], or [MID SETTING].
[D.ZOOM]	Assigns the digital zoom function. Zooms in on the field angle by 2x, 3x and 4x vertically and horizontally.
[ATW]	Assigns the auto tracking white balance function.
[ATW LOCK]	Fixes the white balance value when pressing this item while the auto tracking white balance function is activated. Resumes the auto tracking white balance function when pressing again.
[Y GET]	Assigns the function for displaying the luminance level of the image at the position indicated by the square marker displayed near the center.
[DRS]	Assigns the dynamic range stretcher function. This function expands the dynamic range by compressing the image level in high-brightness areas and stretching the image level in low-brightness areas. The compression level can be varied in the main menu → [PAINT] → [KNEE/LEVEL]. • The dynamic range stretcher function compresses the image level in high-brightness areas and stretches the image level in low-brightness areas. A slight difference in coloring might occur by turning the dynamic range stretcher function [ON]/[OFF]. • When the dynamic range stretcher function is set to [ON], the knee function or the black gamma function are not activated.
[ASSIST]	Switches [ON]/[OFF] for the focus assist display. This is a function to set a focus easily, enlarging the image center on the viewfinder and LCD monitor.
[C.TEMP]	Assigns the function for switching to the mode for changing the color temperature by the jog dial button. This is effective for intentionally varying the color temperature after white balance has been performed. To change the color temperature, press the <USER> button assigned with this function, and then press the jog dial button. The color temperature indicator in the viewfinder screen flashes in reverse to indicate that the mode is entered for changing the color temperature. While the indicator is flashing, turn the jog dial button to change the color temperature. At this time, the setting value of the position (<PRST>/<A>/<B>) where the <WHITE BAL> switch is current set also is changed.
[FBC]	Switches the flash band compensation function to enabled/disabled.
[WFM]	Assigns the function for displaying the waveform or vector in the viewfinder and LCD monitor. Select the waveform display in the main menu → [CAMERA] → [SW MODE] → [WFM].
[AUD CH1/3]	Assigns the function for switching the input signal of audio channel 1 or audio channel 3 (can be switched in the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT]). Each press of the button switches in the order [FRONT] → [REAR] → [W.L.]. At this time, the <AUDIO IN> switch also accepts operations. Priority is given to operations that accepted later on.
[AUD CH2/4]	Assigns the function for switching the input signal of audio channel 2 or audio channel 4 (can be switched in the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT]). Each press of the button switches in the order [FRONT] → [REAR] → [W.L.]. At this time, the <AUDIO IN> switch also accepts operations. Priority is given to operations that accepted later on.
[REC SW]	Assigns the function of the <REC> button.
[RET SW]	Assigns the function of the <RET> button on the lens.
[PRE REC]	Assigns the function for switching the pre-recording function to enabled/disabled.
[SLOT SEL]	Assigns the function for switching the card to record to when two or more cards are inserted.
[USB MODE]	Assigns the function for switching USB device mode or USB storage mode to enabled/disabled. Switching between the USB device mode and the USB storage mode can be selected in the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE SELECT].
[SHOT MARK]	Assigns the function for attaching a shot mark when pressed and deleting the shot mark when pressed again. For details on the shot mark function, refer to “Shot mark recording function” (page 39). This function can be assigned only to the <SHOT MARKER> button. It cannot be assigned to other <USER> buttons.

Item name	Description
[TEXT MEMO]	Assigns the function for recording test memos to frames when the button is pressed. For details on the text memo function, refer to “Text memo recording function” (page 40). This function can be assigned only to the <TEXT MEMO> button. It cannot be assigned to other <USER> buttons.
[LCD B.L]	Toggles the brightness of the LCD monitor backlight. This is interlocked with the setting value in the main menu → [I/F SETUP] → [LCD MONITOR] → [BACKLIGHT].
[EVF CLR]	Selects whether to display video in the viewfinder in color or black and white. This is interlocked with the setting value in the main menu → [VF] → [VF DISPLAY] → [VF COLOR].
[REC MEDIA]	Assigns the function for selecting whether to use the P2 memory card slot or the microP2 memory card slot as the recording slot. This is interlocked with the setting value in main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA].

Only the following functions can be assigned to the <SHOT MARKER> and <TEXT MEMO> buttons.

- <SHOT MARKER> button
  [INHIBIT]/[Y GET]/[ASSIST]/[REC SW]/[RET SW]/[PRE REC]/[SLOT SEL]/[USB MODE]/[LCD B.L]/[SHOT MARK]
- <TEXT MEMO> button
  [INHIBIT]/[Y GET]/[ASSIST]/[REC SW]/[RET SW]/[PRE REC]/[SLOT SEL]/[USB MODE]/[LCD B.L]/[TEXT MEMO]

NOTE

- When the remote control unit AJ-RC10G (optional) or the extension control unit AG-EC4G (optional) is connected, and [I.OVR] or [C.TEMP] is assigned to the <USER> buttons on the AJ-RC10G and AG-EC4G side, operation of the jog dial button on the camera is disabled.
- The following functions also turn off when the camera is turned off.
  [I.OVR]/[S.BLK]/[B.GAMMA]/[Y GET]/[DRS]/[ASSIST]/[C.TEMP]/[ATW]/[ATW LOCK]/[D.ZOOM]/[S.GAIN]/[DS.GAIN]/[FBC]/[WFM]/[AUD CH1/3]/[AUD CH2/4]/[USB MODE]
  Note, however, that the [C.TEMP] color temperature is held after it is altered.

[USER SW GAIN] switching setting

In addition to [L/M/H] standard gain, the [S.GAIN] (super gain) mode for increasing analog gain to 30 dB or more and [DS.GAIN] (digital super gain) for incrementally increasing gain using progressive drive can also be used on the camera.

For selection of this function, set the gains to be used in [S.GAIN] and [DS.GAIN] respectively in advance. Each item can be selected in the main menu → [CAMERA] → [USER SW GAIN]. With [S.GAIN], analog gain increase with [ON] set is enabled, and analog gain increase with [OFF] set does not function. With [DS.GAIN], incremental analog gain increase with [ON] set is enabled, and analog gain increase with [OFF] set does not function.

When [S.GAIN] and [DS.GAIN] are assigned to one of the <USER MAIN>, <USER1> or <USER2> buttons, gain can be increased by a combination with each of the <USER> buttons.

When increasing gain without an increase in noise	Use the digital super gain function.
When increasing regular analog gain (Noise is increased.)	Use only the super gain function. Note that the precision of auto iris, white balance and black balance is affected since noise increases.
When using as a super high-sensitivity mode	Use a combination of the super gain and digital super gain functions. Note, however, that residual images will stand out more with moving subjects the greater the value for increasing gain by digital super gain is set. Pay sufficient care when using this combination of functions. For moving subjects, use [DS.GAIN] at [12dB] or below.

Selecting audio input and adjusting recording levels

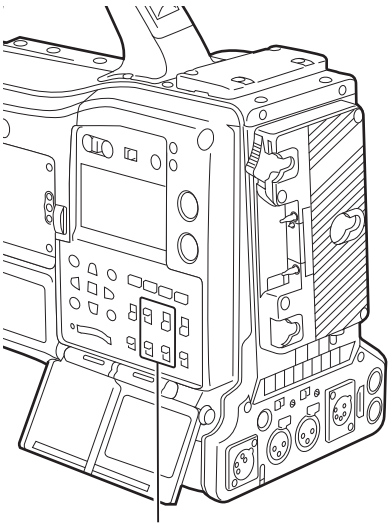
The camera supports independent 4-channel sound recording in all recording formats (HD, SD).

When the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch is set to <AUTO>, the recording level of audio channels 1/2 (3/4 according to the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT]) is automatically adjusted. The recording level can also be manually adjusted by the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dials or <F.AUDIO LEVEL> dial when the switch is set towards <MANU>. You can select whether to adjust the recording level of audio channels 3/4 (1/2 according to [MIC/AUDIO] → [VR SELECT]) automatically or manually in [MIC/AUDIO] → [AUTO LVL CH3(CH1)] and [AUTO LVL CH4(CH2)] (adjusted by [MIC/AUDIO] → [LVL CONTROL CH3(CH1)] and [LVL CONTROL CH4(CH2)]).

- On the camera, you can select whether to adjust the audio level of channels 1/2 or channels 3/4 by the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial. As the factory setting, the audio of channels 1/2 is set to be adjusted by the level adjustment dial.
- With HD cards, too, four audio channels are recorded to P2 cards.
- When SDI input signals are recorded, the settings made here are disabled, and audio signals from the <SDI IN> terminal are recorded at all times.

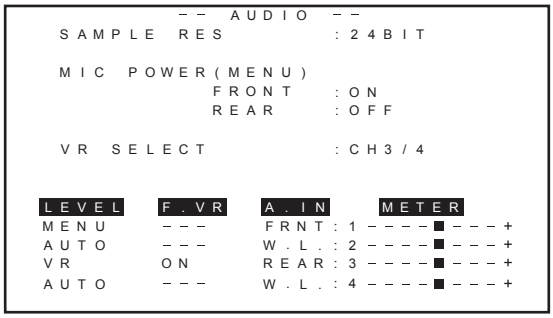
Selecting audio input signals

By the <AUDIO IN> switch, select the input signal to be recorded to audio channel 1/2/3/4.



<AUDIO IN> switch

The input selection can be checked on the [AUDIO] screen of the mode check display.



Adjusting the recording levels

On the camera, adjustment of the recording level can be selected from three methods: adjustment dial, adjustment by menu items and automatic adjustment. Select which two channels, [CH1/2] or [CH3/4], are to be assigned to the adjustment dial in the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT]. The two channels not assigned to the adjustment dial are automatically adjusted. They can also be adjusted by the menu items. [CH1/2] is assigned to the adjustment dial as the factory setting.

Selection of level adjustment method

At [VR SELECT], select which of [CH1/2] or [CH3/4], are to be assigned to the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial.

[CH1/2]	Assigns the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial to channels 1/2. The <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switches are also enabled for channels 1/2. Channels 3/4 are automatically adjusted. When [AUTO LVL CH3] and [AUTO LVL CH4] are set to [OFF] in the main menu → [I/F SETUP] → [MIC/AUDIO], automatic adjustment is canceled and the level can also be adjusted by [LVL CONTROL CH3] and [LVL CONTROL CH4].
[CH3/4]	Assigns the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial to channels 3/4. The <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switches are also enabled for channels 3/4. Channels 1/2 are automatically adjusted. When [AUTO LVL CH1] and [AUTO LVL CH2] are set to [OFF] in the main menu → [I/F SETUP] → [MIC/AUDIO], automatic adjustment is canceled and the level can also be adjusted by [LVL CONTROL CH1] and [LVL CONTROL CH2].

NOTE

- The values of each item when [VR SELECT] is changed are carried over.

When the level adjustment dial is assigned to [CH1/2]

■ Selection of level adjustment of channels 1/2

For the level adjustment method of channels 1/2, select <AUTO> (automatic adjustment) or <MANU> (manual adjustment by adjustment dial) by the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch.

When <MANU> is selected, the volume of channels 1/2 is adjusted by the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial.

■ Adjustment by <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial

Adjustment the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial while viewing the audio channel level meter in the display window or the audio level meter in the LCD monitor. When the topmost bar (0 dB) is exceeded, the [OVER] display is illuminated to indicate that input audio is excessive. The maximum level must be adjusted so that the display does not reach 0 dB.

■ Adjustment by <F.AUDIO LEVEL> dial

When operating the camera alone, we recommend using the <F.AUDIO LEVEL> dial to adjust the audio level. Select the audio channel to be adjusted in advance, and while viewing the level meter of the viewfinder screen, adjust the level by the <F.AUDIO LEVEL> dial so that input does not become too great.

When adjusting the recording level by the <F.AUDIO LEVEL> dial, perform the following operation. Select whether to enable [FRONT VR CH1] and [FRONT VR CH2] on the line selected as the input signal of each channel in the main menu → [I/F SETUP] → [MIC/AUDIO].

[OFF]: Disabled

[FRONT]: Enabled when <FRONT> is selected for the input signal

[W.L.]: Enabled when wireless is selected for the input signal

[REAR]: Enabled when <REAR> is selected for the input signal

[ALL]: Enabled on all input lines

■ Level adjustment of channels 3/4

Automatic adjustment is enabled when [AUTO LVL CH3] and [AUTO LVL CH4] are set to [ON] in the main menu → [I/F SETUP] → [MIC/AUDIO]. When these items are set to [OFF], automatic adjustment stops functioning, and the audio level can be adjusted by [LVL CONTROL CH3] and [LVL CONTROL CH4] in [MIC/AUDIO].

When the level adjustment dial is assigned to [CH3/4]

■ Selection of level adjustment of channels 3/4

For the level adjustment method of channels 3/4, select <AUTO> (automatic adjustment) or <MANU> (manual adjustment by adjustment dial) by the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch.

When <MANU> is selected, the volume of channels 3/4 is adjusted by the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial.

■ Adjustment by <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial

Adjustment is possible by the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> dial in the same way as when the level adjustment dial is assigned to [CH1/2].

■ Level adjustment of channels 3/4

Automatic adjustment is enabled when [AUTO LVL CH1] and [AUTO LVL CH2] are set to [ON] in the main menu → [I/F SETUP] → [MIC/AUDIO]. When these items are set to [OFF], automatic adjustment stops functioning, and the audio level can be adjusted by [LVL CONTROL CH1] and [LVL CONTROL CH2] in [MIC/AUDIO].

Selection of adjustment method

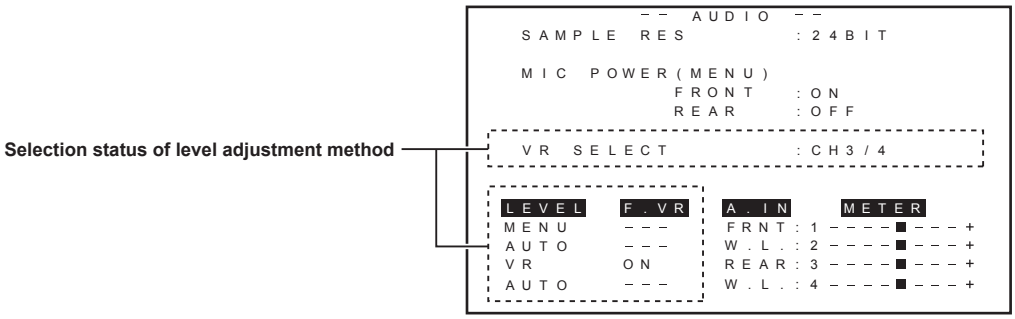
■ When [CH1/2] is selected by [VR SELECT]

Channel 1, channel 2		Channel 3, channel 4	
<AUDIO SELECT CH1/3> switch <AUDIO SELECT CH2/4> switch	**Adjustment method**	**[AUTO LVL CH3] [AUTO LVL CH4]**	**Adjustment method**
<MANU>	Manual adjustment by adjustment dial	[OFF]	Manual adjustment by [LVL CONTROL CH3], [LVL CONTROL CH4]
<AUTO>	Automatic adjustment	[ON]	Automatic adjustment

■ **When [CH3/4] is selected by [VR SELECT]**

Channel 1, channel 2		Channel 3, channel 4	
[AUTO LVL CH1] [AUTO LVL CH2]	**Adjustment method**	**<AUDIO SELECT CH1/3> switch <AUDIO SELECT CH2/4> switch**	**Adjustment method**
[OFF]	Manual adjustment by [LVL CONTROL CH1], [LVL CONTROL CH2]	<MANU>	Manual adjustment by adjustment dial
[ON]	Automatic adjustment	<AUTO>	Automatic adjustment

Selection of the audio level adjustment method can be checked on the [AUDIO] screen of the mode check display. (page 78)


Selection status of level adjustment method
– – AUDIO – –
SAMPLE RES : 24BIT
MIC POWER(MENU)
FRONT : ON
REAR : OFF
VR SELECT : CH3/4
LEVEL F.VR
MENU – – –
AUTO – – –
VR ON
AUTO – – –
A.IN METER
FRNT : 1 – – – – ■ – – – +
W.L. : 2 – – – – ■ – – – +
REAR : 3 – – – – ■ – – – +
W.L. : 4 – – – – ■ – – – +

Selection of external reference signal and generator lock setting

Locking the video signal to the external reference signal

The video signal output from the camera can be locked to the reference signal supplied from an external source.

The camera can receive the external reference signal from the <GENLOCK IN> terminal (exclusively for analog signal) and <SDI IN> terminal (exclusively for SDI signal).

Generator-locking to the reference signal supplied from the <GENLOCK IN> terminal

The HD-Y signal or a composite signal matching the system frame frequency is supplied to the <GENLOCK IN> terminal. To enable the reference signal input to the <GENLOCK IN> terminal, [GL IN] must be set in the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK]. Select the output signal to lock to the input reference signal at [GL PHASE] (at 1080/59.94i, 1080/50i only).

Adjust the horizontal phase of the reference signal and output signal at [H PHASE COARSE] and [H PHASE FINE].

NOTE

- The sub-carrier of the camera's composite signal is not locked to the sub-carrier of the reference signal.

Generator-locking to the reference signal supplied from the <SDI IN> terminal

The SDI matching the system frame frequency is supplied to the <SDI IN> terminal.

To enable the reference signal input to the <SDI IN> terminal, [SDI IN] must be set in the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK]. When [SDI] is selected in the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL], the signal is synchronized with the reference signal input to the <SDI IN> terminal regardless of the selection of [GENLOCK]. The phase of the output signal at this time is the same as the reference signal supplied to the <SDI IN> terminal.

Adjust the horizontal phase of the reference signal and output signal at [H PHASE COARSE] and [H PHASE FINE].

Output status

The output status changes as follows according to selection of the external reference signal and generator lock setting.

Set [GENLOCK] and [GL PHASE] in the main menu → [I/F SETUP] → [GENLOCK].

Selection of external reference signal			Generator lock setting	Output signal status (phase relationship with external reference signal)
System mode	[GENLOCK]	Input signal and input terminal	[GL PHASE]	
1080i/1080P	[SDI IN]	HD SDI: <SDI IN> terminal	[HD SDI]	HD SDI output matches the HD SDI input signal. Down converter output has a delay of approx. 90 H from the HD SDI input signal.
			[COMPOSITE]	Down converter output matches the HD SDI input signal. HD SDI output has an advance of approx. 90 H from the HD SDI input signal.
		SD SDI: <SDI IN> terminal	[HD SDI]	HD SDI output is not locked to the SD SDI input signal. Down converter output is not locked to the SD SDI input signal.
			[COMPOSITE]	
	[GL IN]	HD-Y: <GENLOCK IN> terminal	[HD SDI]	HD SDI output matches the HD-Y input signal. Down converter output has a delay of approx. 90 H from the HD-Y input signal.
			[COMPOSITE]	Down converter output matches the HD-Y input signal. HD SDI output has an advance of approx. 90 H from the HD-Y input signal.
		VBS: <GENLOCK IN> terminal	[HD SDI]	HD SDI output matches the VBS input signal. Down converter output has a delay of approx. 90 H from the VBS input signal.
			[COMPOSITE]	Down converter output matches the VBS input signal. HD SDI output has an advance of approx. 90 H from the VBS input signal.
	[INT]	—	—	Output is non-synchronous to the input signal.
480i/576i	[SDI IN]	SD SDI: <SDI IN> terminal	—	SD SDI output matches the SD SDI input signal. VBS output matches the SD SDI input signal.
		HD SDI: <SDI IN> terminal	—	SD SDI output is not locked to the HD SDI input signal. VBS output is not locked to the HD SDI input signal.
	[GL IN]	VBS: <GENLOCK IN> terminal	—	SD SDI output matches the VBS input signal. VBS output matches the VBS input signal.
		HD-Y: <GENLOCK IN> terminal	—	SD SDI output is not locked to the HD-Y input signal. VBS output is not locked to the HD-Y input signal.
	[INT]	—	—	Output is non-synchronous to the input signal.

NOTE

- In the system mode of [1080P], a generator lock is applied to the video signal when the HD-Y or HD SDI signal is input. In this case, time code may shift by one frame.

Setting the time data

The camera provides time codes, user bits, and date/time (real time) data as time data, and they are recorded in frame in sync with video. They are also recorded as data for clip metadata files. A CTL counter and camera ID are built in.

Definition of time data

■ Time code

Recording run and free run can be switched by the <TCG> switch.

- Free run: The time code always advances even when the power is turned off, and it can be handled in the same way as time. It can also be slaved to the time code input to the <TC IN> terminal.
- Recording run: The time code can be regenerated to the time code of clips recorded to P2 cards and recorded as a continuous value.

■ User bits

Two types of user bits are built in.

- LTC UB: Recorded as LTC and output from the <TC OUT> terminal. It is also output as LTC of the HD SDI signal.
- VITC UB: Recorded as VITC (recorded to VIDEO AUX area by DVCPRO). It is also output as VITC of the HD SDI signal.

You can select and record user set values, time, year/month/day, the same value as time codes, camera frame rate information, and input value of external signals from the <TC IN> terminal, etc., respectively.

NOTE

- Only one type of user set values is recorded.

■ Date/time (real time)

- The internal clock is used for measuring the free run time code while the power is off and as the time and year/month/day data of the user bits. It is also used as the reference for file generation times during clip recording, which determine the sorting order of thumbnails and the order of playback.
- It is also used to generate clip metadata.

  For details, refer to “Setting the date/time of the internal clock” (page 30).

■ CTL counter

- During recording, the CTL counter measures the total recording time since the last reset. During playback, it is also the value for counting the beginning of playable clips as a reference point. It can be used as a means for relatively learning the current playback position.

■ Camera ID

- 10 characters x 3 lines can be set as the camera ID which can be recorded superimposed over the color bar image. It can also be recorded superimposed simultaneously on the date/time data.

Recording and output of time codes and user bits

Recording and output of time codes

System setting state		Recording TC		Output TC	
[LINE&FREQ]	[REC FORMAT]	LTC	VITC	TC OUT	LTC, VITC of HD SDI
[1080-59.94i]	Respective format	Recording run/free run* [DF]/[NDF] 30 frames	Same value as LTC	LTC is output.	LTC is output.
[1080-50i]	Respective format	Recording run/free run* 25 frames	Same value as LTC	LTC is output.	LTC is output.
[1080-59.94P]	Respective format	Recording run/free run* [DF]/[NDF] 30 frames	Same value as LTC	LTC is output.	LTC is output.
[1080-50P]	Respective format	Recording run/free run* 25 frames	Same value as LTC	LTC is output.	LTC is output.
[480-59.94i]	Respective format	Recording run/free run* [DF]/[NDF] 30 frames	Same value as LTC (No recording in [DV] mode)	Same value as LTC	None
[576-50i]	Respective format	Recording run/free run* 25 frames	Same value as LTC (No recording in [DV] mode)	Same value as LTC	None

* For free run, the time code is slaved to the input TC of the <TC IN> terminal.

Recording and output of user bits

System setting state		Recording UB		Output UB		
[LINE&FREQ]	[REC FORMAT]	LTC UB	VITC UB	<TC OUT> terminal UB	LTC UB for HD SDI	VITC UB for HD SDI
[1080-59.94i]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	LTC UB is output.	VITC UB is output.
[1080-50i]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	LTC UB is output.	VITC UB is output.
[1080-59.94P]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	LTC UB is output.	VITC UB is output.
[1080-50P]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	LTC UB is output.	VITC UB is output.

System setting state		Recording UB		Output UB		
[LINE&FREQ]	[REC FORMAT]	LTC UB	VITC UB	<TC OUT> terminal UB	LTC UB for HD SDI	VITC UB for HD SDI
[480-59.94i]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	None	None
[576-50i]	Respective format	Following [UBG MODE]*	Following [VITC UBG MODE]	LTC UB is output.	None	None

* With [EXT], UB of the <TC IN> terminal is slaved.

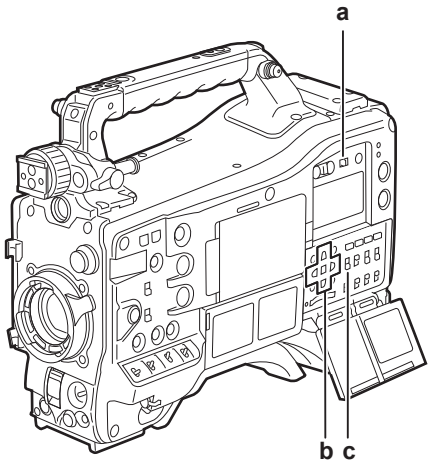
User bits settings

Set LTC UB in the main menu → [REC/PB] → [TC/UB] → [UBG MODE], and set VITC UB in the main menu → [REC/PB] → [TC/UB] → [VITC UBG MODE].

Item name	Description
[USER] (only [UBG MODE])	Records internal user values. User values can be entered on the display window. Setting values are held even when the power is turned off. For details, refer to “How to input user bits” (page 63).
[USER/EXT] (only [VITC UBG MODE])	Records internal user values as VITC UB. Same value as the user bit that is displayed when [UBG MODE] is set to [USER] or [EXT].
[TIME]	Records the time measured by the internal clock.
[DATE]	Records the hour digit of year/month/day/date-time measured by the internal clock.
[EXT] (only [UBG MODE])	Records the user bit values currently input to the <TC IN> terminal. User values held internally also change this input value.
[TCG]	Records the time code value.
[FRAME RATE]	Records the camera photo frame rate information. When playing back clips recorded in native format, the same frame rate information as VITC UB is output regardless of the recorded value. Use at this setting when the editing device such as a computer uses the frame rate information of the user bits.
[REGEN]	Reads the user bit last recorded to P2 card that is currently to be recorded to and recording this value as it is.

How to input user bits

By setting user bits, information such as memos (date, time) up to eight digits long (hexadecimal) can be recorded.



a: <DISPLAY> switch

b: Cursor buttons (△/▽/◁/▷)

c: <TCG> switch

1 Set the <DISPLAY> switch to <UB>.

2 Set the <TCG> switch to <SET>.

3 Set the user bits by the cursor buttons.

- Screen display
  - ▷: The digit to be set (flashing) moves to the right.
  - ◁: The digit to be set (flashing) moves to the left.
  - △: The value of the digit to set (flashing) is incremented by one.
  - ▽: The value of the digit to set (flashing) is decremented by one.

4 Set the <TCG> switch to <F-RUN> or <R-RUN>.

5 Set [USER] in the main menu → [REC/PB] → [TC/UB] → [UBG MODE].

For details, refer to “Setting menu basic operations” (page 134).

NOTE

- Thumbnail operations and menu operations on thumbnail operation section are not possible while the <TCG> switch is set to <SET>.
- To confirm VITC UB, press the <HOLD> switch to display [VTCG] on the display window.

Retention of user bits in memory

User bit settings are automatically recorded and are retained even if the power is turned off.

Setting the time code

1 Set the <DISPLAY> switch to <TC>.

2 Set the <TCG> switch to <SET>.

3 Set [DF] or [NDF] in the main menu → [REC/PB] → [TC/UB] → [DF MODE].

For details, refer to “Setting menu basic operations” (page 134).

- Set [DF] to advance the time code in the drop frame mode, and set [NDF] to advance it in the non-drop frame mode.

4 Set the time code by the cursor buttons.

- Screen display
  - ▷: The digit to be set (flashing) moves to the right.
  - ◁: The digit to be set (flashing) moves to the left.
  - △: The value of the digit to set (flashing) is incremented by one.
  - ▽: The value of the digit to set (flashing) is decremented by one.

5 Switch by the <TCG> switch.

To advance the time code by free run, switch to <F-RUN>, and to advance by recording run, switch to <R-RUN>.

Settable time code range

For 59.94 Hz (except for 24PN)	00:00:00:00 - 23:59:59:29
For 50 Hz:	00:00:00:00 - 23:59:59:24

NOTE

- Switching of [DF] and [NDF] is enabled when the system frequency of the camera is set to 59.94 Hz.
- Thumbnail operations and menu operations on thumbnail operation section are not possible while the <TCG> switch is set to <SET>.

Time code regeneration

When the <TCG> switch is set to <R-RUN>, the time code currently recorded to the last frame of the last clip (clip with the newest recording date and time) recorded to the P2 card can be read and recorded. If the P2 card is removed or inserted or a card to be recorded is changed by the [SLOT SEL] function of the <USER> button while [REGEN] is selected in the main menu → [REC/PB] → [TC/UB] → [FIRST REC TC], the time code is carried over and recorded to the clip last recorded on the P2 card that was to be recorded to. If there are no recorded clips, the time code is recorded from the TC generator value on the camera.

Regeneration by the recording check function

When [PRESET] is set in the main menu → [REC/PB] → [TC/UB] → [FIRST REC TC], or after the time code is set or reset, or the time code is switched from free run to recording run, the time code can be regenerated to the last time code of the clip recorded to the P2 card. To perform this operation, set [REC CHECK] in the main menu → [CAMERA] → [SW MODE] → [RET SW], and set [ON] in the main menu → [REC/PB] → [TC/UB] → [REC CHECK REGEN], respectively.

1 Check the P2 card to be recorded to.

To regenerate to the time code of the last recorded clip when multiple P2 cards are inserted, press the <THUMBNAIL> button to display the thumbnail screen.

2 Check the P2 card recorded with the clip displayed last on screen, and switch the slot by the <USER> button assigned with [SLOT SEL] so that recording is performed on that P2 card.

3 Press the <RET> button on the lens.

- [TC REGEN] is displayed on the viewfinder.
- When recording is next performed, the time code is regenerated to the last recorded clip on the card to record to.

NOTE

- When the card to record to is changed, the time code is regenerated to the time code of the last recorded clip on the P2 card that was changed to.
- During recording or free run, this function cannot be used.

Time code function during battery replacement

Even during battery replacement, the backup mechanism functions, allowing the time code generator to continue operating.

When each item of the system mode has been changed, the time code of free run may shift. Turn on the power again, check the time code, and reset it, if necessary.

NOTE

- When the <POWER> switch has been switched to <ON> → <OFF> → <ON>, the backup accuracy of the time code in the free run mode is approximately ±2 frames.

Externally locking the time code

The internal time code generator of the camera can be locked to an external generator. In addition, the time code generator of an external device can be locked to the internal time code generator of the camera.

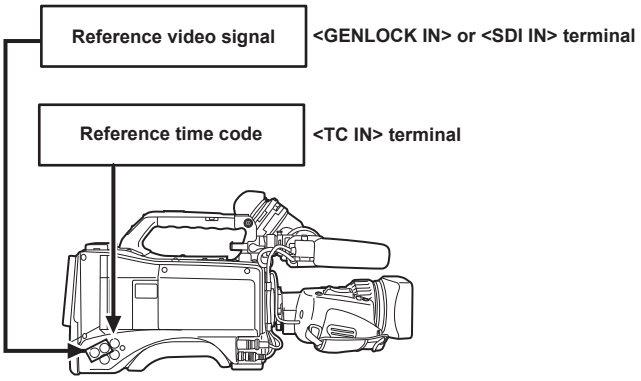
Example of connections for external locking

As shown in the figure, connect both the reference video signal and the reference time code.

For details on reference signal and generator lock, refer to “Selection of external reference signal and generator lock setting” (page 61).

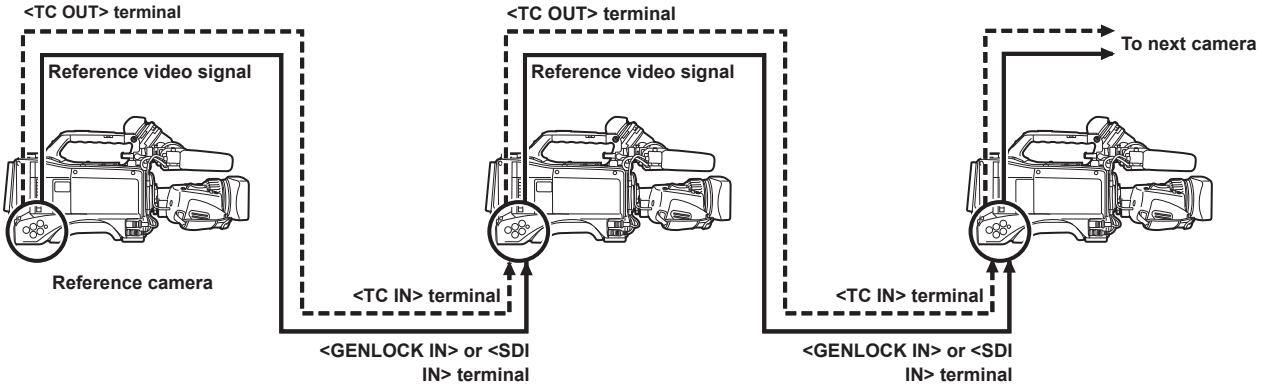
While the scan reverse is activated, delay of the image occurs internally. When the camera is connected in parallel to a device capable of recording without a delay, the delay of time codes must be synchronized in the main menu → [REC/PB] → [TC/UB] → [TC OUTPUT REF].

■ **When locking onto an external signal**

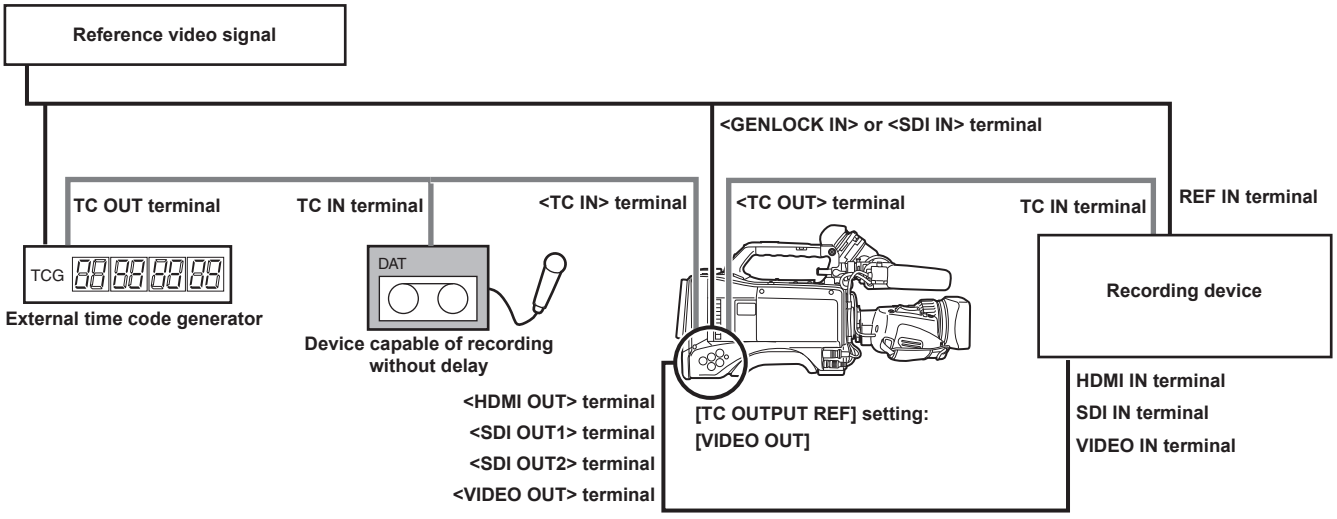


■ **When multiple cameras are connected and one is used as a reference camera**

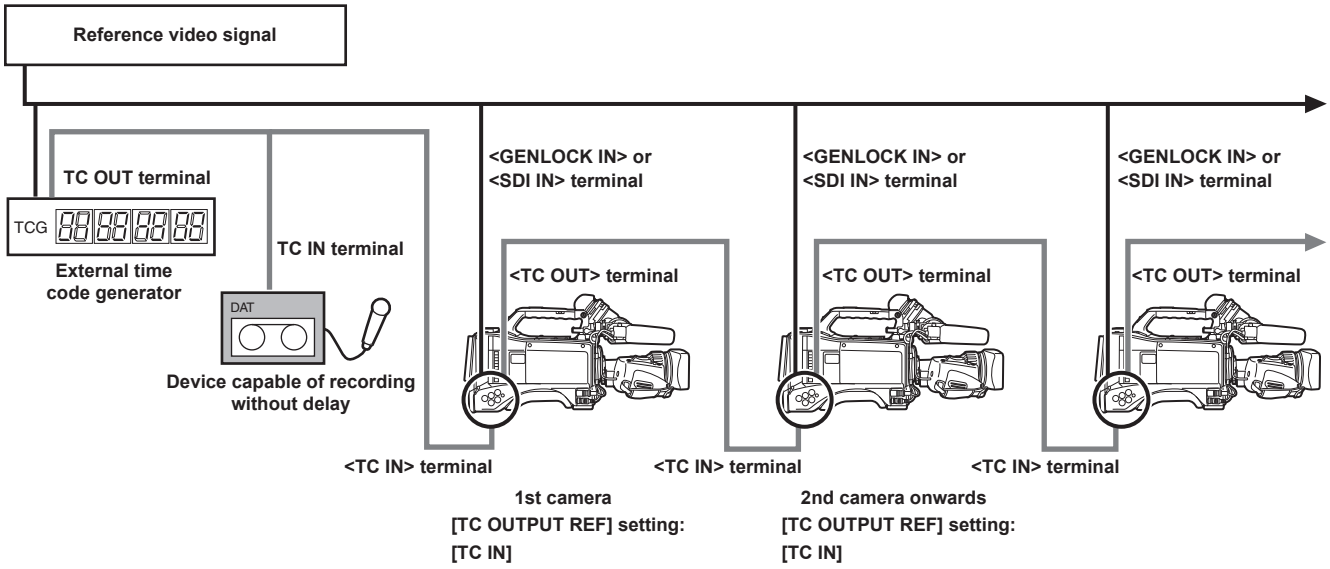
When building a system using multiple cameras, set the inputs and outputs to the same on all cameras. If different settings are set, shooting timing will no longer match.



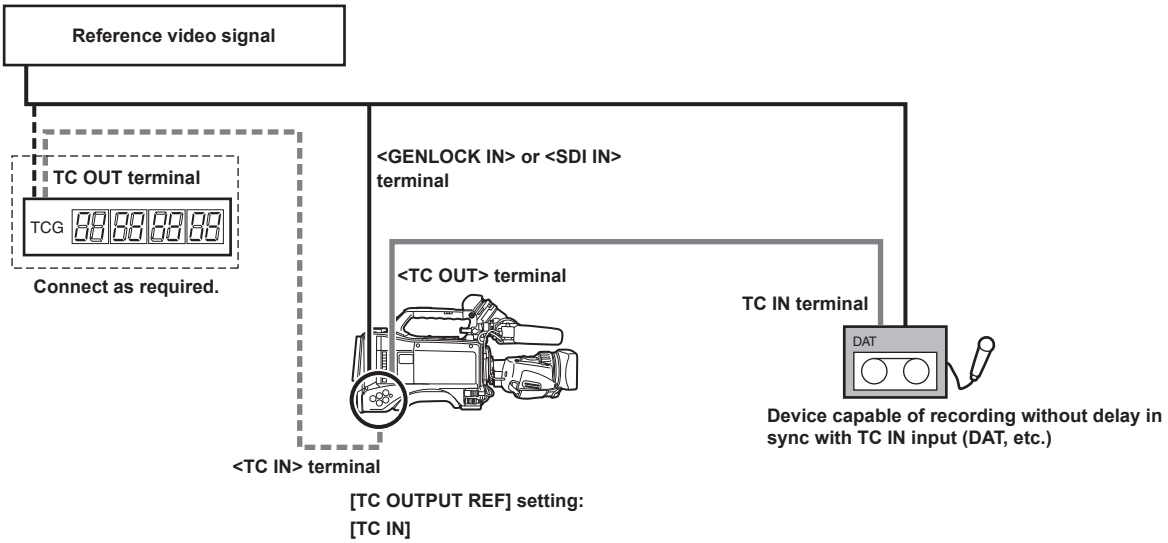
■ **When the camera and external device are locked to the external time code generator, and the TC OUT output signal of the camera is used for simultaneous recording**



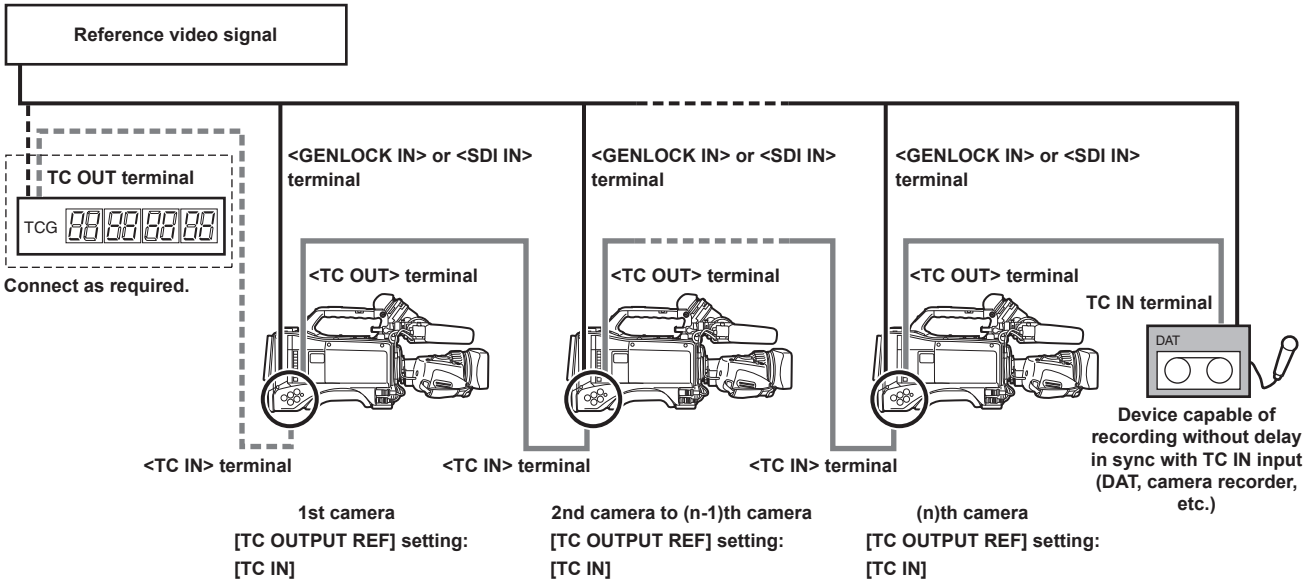
■ **When the camera and external devices are locked to the external time code generator and two or more cameras are connected in a cascade configuration**



■ **When the external device is locked to the time code generator of the camera**



■ **When the external device is locked to the time code generator of the camera connected in a cascade configuration**



External lock operation procedure

To externally lock the time code, follow the steps below.

1 Set the <TCG> switch to <F-RUN>.

2 Set the <DISPLAY> switch to <TC>.

3 Set [GL IN] or [SDI IN] in the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK].

4 Input a reference time code and reference video signal that are in a phase relationship (that conforms to time code specifications) to the <TC IN> and <GENLOCK IN> terminals or <SDI IN> terminal, respectively.

The built-in time code generator is locked to the reference time code. When approximately ten seconds has elapsed after locking, the external lock status will be held even if the reference time code from the external device is disconnected.

- When the input reference signal of generator lock is disrupted, recording cannot be performed normally. [TEMPORARY PAUSE IRREGULAR SIG] is displayed in the viewfinder screen, and the clip is divided. The continuity of the time code is not guaranteed. Recording resumes when the signal returns to normal. However, during loop recording, recording does not resume.
- When the time code is externally locked, the time code is instantaneously locked to the external time code, the same value as the value of the external time code is output to the counter display area. Do not set to the recording mode for several seconds until the sync generator has stabilized. Furthermore, lock the time code to the <TC IN> terminal signal. The time code of the HD SDI signal input from the <SDI IN> terminal is not locked.
- When [PRE REC] is set to [ON] in the main menu → [REC/PB] → [REC FUNCTION], disrupted images or stopped time codes may be recorded if the time code is switched from recording run to free run immediately before recording or an external time code is input to be slaved to the <TC IN> terminal.

Setting of user bits when the time code is externally locked

When the <TCG> switch is set to <F-RUN>, only the time code is locked to the time code from the external source. To lock the user bits to the input value from an external source, set [EXT] in the main menu → [REC/PB] → [TC/UB] → [UBG MODE], and set [USER/EXT] in the main menu → [REC/PB] → [TC/UB] → [VITC UBG MODE].

Canceling the external lock

Set the <TCG> switch to <R-RUN> after stopping supply of the external time code.

Cautions when switching the power supply from the battery to the external power supply while an external lock is active

To keep on the time code generator power supply continuously, connect an external power supply to the <DC IN> terminal and then remove the battery pack. If the battery pack is removed first, there is no guarantee that the time code will stay externally locked.

External synchronization of the camera unit while an external lock is active

While an external lock is active, the generator lock is activated on the camera unit by the reference video signal input to the <GENLOCK IN> or <SDI IN> terminal.

NOTE

- To externally lock multiple units with the camera as the master device, set to the same setting as on the camera. Note that in a system using a mixture of interlaced and progressive scanning, the continuity of the video and time codes is not guaranteed.
- To use the <SDI OUT1> terminal or monitor output terminal (<SDI OUT2>, <VIDEO OUT>) as the reference video signal, set [SDI OUT1 MODE] or [MONITOR OUT MODE] to [CAM] in the main menu → [I/F SETUP] → [OUTPUT SEL].

Superimposing the time code

To display the time code in the viewfinder or LCD monitor during shooting or playback, set [TCG], [TCR], or [TCG/TCR] in the main menu → [VF] → [VF INDICATOR] → [TC].

To display these time code indicators on a device connected to monitor output or the <SDI OUT1> terminal, perform the following. Set the <MON OUT CHARACTER> switch on the side to <ON>, and set [ON] in the main menu → [I/F SETUP] → [OUTPUT SEL] → [SDI OUT1 CHAR].

To display the time code in the color bar display, set [ON] in the main menu → [VF] → [VF INDICATOR] → [TC ON COLOR BAR].

Setting the camera ID

Set the camera ID in the main menu → [CAMERA] → [CAMERA ID]. Alphanumerics, symbols, and spaces within ten characters can be used.

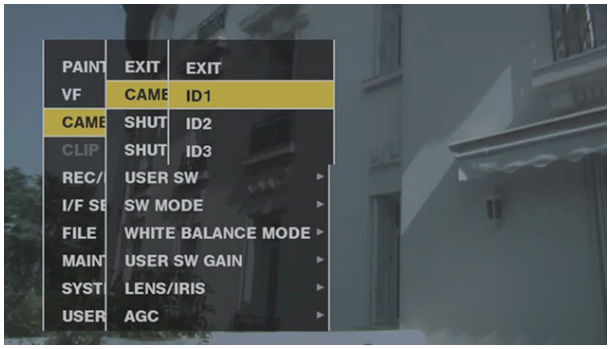


Fig. 1

Fig. 2

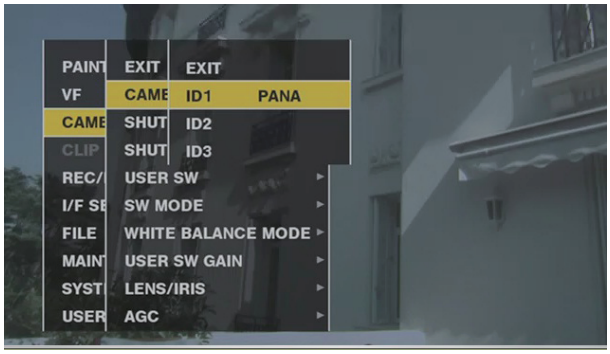


Fig. 3

1 Select [CAMERA ID] in the main menu → [CAMERA], and use the jog dial button (or cursor buttons △/▽) to navigate to the [ID1] to [ID3] items. (Fig. 1)

2 Press the jog dial button (or <SET> button).

The camera ID input screen and software keyboard are displayed.

3 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select the desired characters. (Fig. 2)

4 Press the jog dial button (or <SET> button) to apply the character.

5 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The entered character string is set and the screen returns to the selection menu of the camera ID. (Fig. 3)

6 Press the <MENU> button to end the operation.

NOTE

- While the setting menu is displayed, the camera ID will not be displayed even if the color bar signal is output.
- The following settings can be made in the main menu → [VF] → [VF INDICATOR].
  - When setting [CAMERA ID] to [BAR], the camera ID is recorded at the same time as the color bar signal.
  - The position where the camera ID is superimposed on the color bar can be selected in [ID POSITION].
  - When setting [DATE/TIME] to [ON], date and time information as well as the camera ID can be superimposed on the color bar.
  - When setting [TC ON COLOR BAR] to [ON], the time code is displayed at color bar output. The time code is not recorded.

CTL counter setting and display

When the <DISPLAY> switch is set to <CTL>, the CTL counter value appears in the time counter display in the LCD display window. The counter value is ±12-hour display. Besides the time code, drop frame and non-drop frame can be set in the main menu → [REC/PB] → [TC/UB] → [DF MODE]. The playback order of clips recorded to P2 cards is not linear such as with VTR. Each time that thumbnail operation is performed or that some of the P2 cards are re-inserted, the counter value will be re-organized and the positioning of the clips recorded so far will change. Accordingly, in the recording and playback modes, separate counter values are displayed.

CTL counter in the recording mode (recording CTL)

In the recording mode (record, recording pause, stop, and recording check), the recording CTL counter value is displayed and counting is performed continuously from the previous recording end point. The CTL counter value is held even if the camera is turned off. Counting is continued from the previous value when the camera is next turned on.

NOTE

- If the <RESET> button is pressed while the recording CTL counter value is displayed, only the recording CTL counter value is reset. Note, however, that the counter value cannot be reset during a recording check.

CTL counter in the playback mode (playback CTL)

Example:

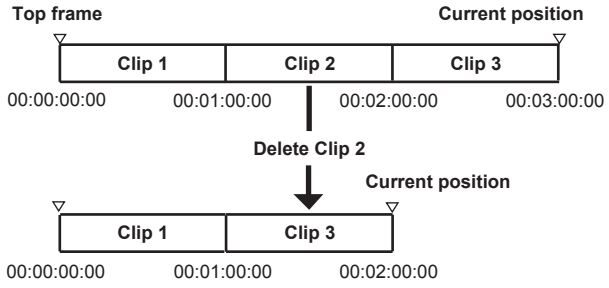


Fig. 1

Example:

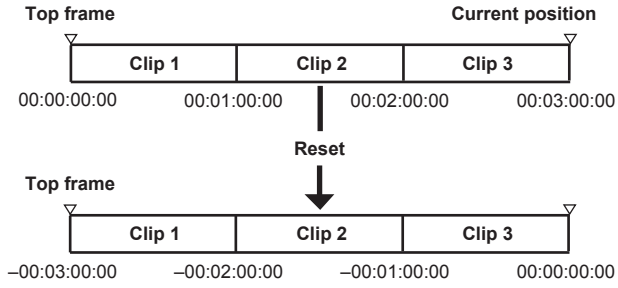


Fig. 2

In the playback mode (playback, fast-forward, cue, playback paused), the playback CTL counter value is displayed. For the playback CTL counter value, each time that the playback order of the clip is changed (clip is sorted in recording date and time order), the playback CTL counter value so far is disabled, and is re-calculated referenced to the start frame of the initial clip and displayed again. (Fig. 1)

The clip playback order is changed in the following cases:

- When a clip is deleted, copied or repaired, or a P2 card is formatted
- When the thumbnail display is switched (For details, refer to “Thumbnail screen display settings” (page 111).)
- When a P2 card is inserted or removed

The reference value (value of start frame of initial clip) is changed in the following cases:

- When the power is turned on or all P2 cards are removed, the top frame becomes 0.
- When the playback CTL counter value is reset, the current playback position is taken as 0, and the location that was the reference location becomes a minus number value. (Fig. 2)

NOTE

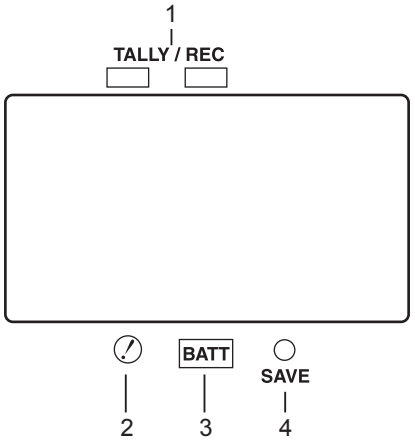
- If the <RESET> button is pressed while the playback CTL counter value is displayed, only the playback CTL counter value is reset.

Viewfinder status display

In addition to video, the viewfinder displays messages that indicate the camera settings and operation status, a center marker, safety zone marker, zebra patterns, camera ID, and other information.

Lamp display in the viewfinder

The example is for the AJ-HVF21KG. (For information on the viewfinder, refer to the Operating Instructions for the optional viewfinder.)



1 TALLY/REC (recording) lamp
Illuminated red during recording, and flashes if an abnormality occurs.
For details, refer to “Warning system” (page 194).

2 (Irregular operation status warning) lamp
Lights when the camera enters an irregular operation status among the items set [ON] in the main menu → [VF] → [!LED].

3 BATT (battery) lamp
Starts flashing when the battery voltage drops and before the battery charge starts to run out. It is illuminated after the battery is completely flat. To prevent operation from being interrupted, replace the battery before it is nearly flat.
For details, refer to “Warning system” (page 194).

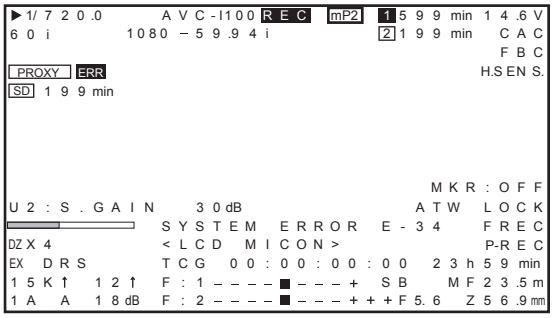
4 SAVE lamp
During regular operation
- The lamp is out.

When [SAVE LED] is set to [P2CARD]
- Flashes when there is little capacity on the P2 card when [P2CARD] is set to in the main menu → [VF] → [VF INDICATOR] → [SAVE LED].

For details, refer to “Warning system” (page 194).

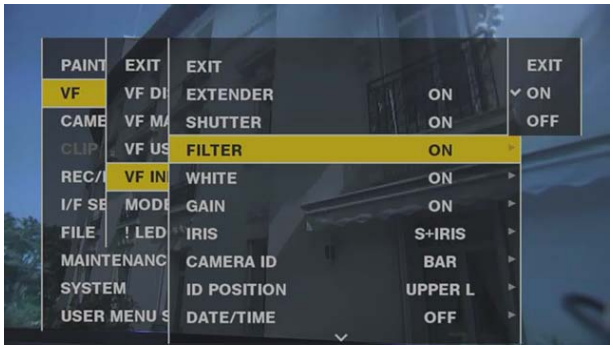
Configuration of status display on viewfinder screen

The screen displayed in normal status is displayed as shown below.

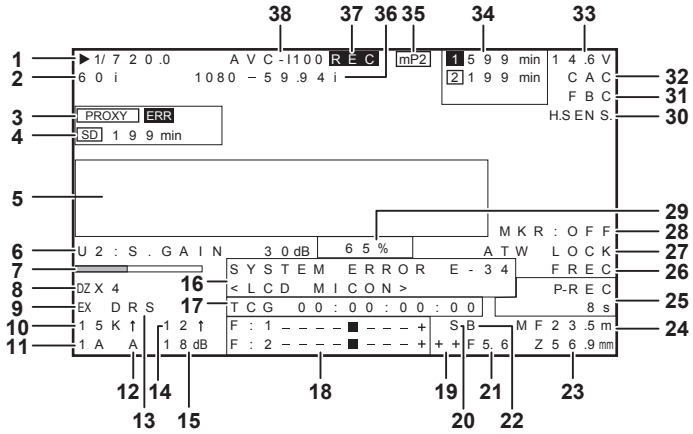

▶1/720.0 AVC-I100 REC mP2 1 599 min 14.6V
60i 1080−59.94i 2 199 min CAC
FBC
PROXY ERR H.S EN S.
SD 199 min
MKR:OFF
U2:S.GAIN 30dB ATW LOCK
SYSTEM ERROR E-34 FREC
DZX4 <LCD MICON> P-REC
EX DRS TCG 00:00:00:00 23h59 min
15K↑ 12↑ F:1−−−−■−−−+ SB MF23.5m
1A A 18dB F:2−−−−■−−−++F5.6 Z56.9mm

Selecting display items on viewfinder screen

To select display items on the viewfinder screen, switch [ON]/[OFF] or the type of the respective item in the main menu → [VF] → [VF INDICATOR].
For details, refer to “Setting menu basic operations” (page 134).



Screen display



1 Shutter speed/mode

[▶1/∗∗.∗]	The shutter speed is set to synchro scan.
[1/60 (1/100)] - [1/2000], [HALF], [∗∗∗.∗d]	A fixed shutter speed is set.

2 Camera mode

Displays the video method when the signals output from CCD are recorded to the P2 card or output as video signals.

[60P]	1080/59.94P
[60i]	1080/59.94i or 480/59.94i
[50P]	1080/50P
[50i]	1080/50i or 576/50i

3 Proxy information display

Displays the proxy recording information.

[PROXY P2 (P2&SD)]	Displayed when proxy recording is started.
[PROXY ERR]	Displayed when there is an error in proxy recording.

4 SD memory card status display

[WP]	Write protect
[END]	No remaining free space
[WR ERR]	Write error
[SD ∗∗∗min]	The remaining amount is displayed when proxy is recorded to SD memory card. (Displayed only in the regular mode check) Flashing when the remaining capacity is one minute or less. [—min] is displayed when there is no SD memory card.

5 Camera warning, notification display area
(Related to automatic white balance, automatic black balance and switch operation)

[AWB A ACTIVE]	Displayed when automatic white balance is active on the <A> channel.
[AWB B ACTIVE]	Displayed when automatic white balance is active on the <B> channel.
[AWB A OK ∗.∗K]	Displayed when automatic white balance has ended successfully on the <A> channel.
[AWB B OK ∗.∗K]	Displayed when automatic white balance has ended successfully on the <B> channel.
[AWB BREAK ∗.∗K]	Displayed when automatic white balance operation is forcibly ended.

[AWB NG]	Displayed when automatic white balance operation is not ended successfully. The 2nd line displays that status.	
	[COLOR TEMP LOW]	Warns that the color temperature is too low.
	[COLOR TEMP HIGH]	Warns that the color temperature is too high.
	[LEVEL OVER]	Warns that the brightness is too high.
	[LOW LIGHT]	Warns that the brightness is too low.
	[TIME OVER]	Warns that processing could not be executed within the operation time.
[ATW MODE]	Displayed when automatic white balance cannot be executed due to activation of auto tracking white balance.	
[AWB PRESET ∗.∗K]	Displayed when the <WHITE BAL> switch is set to <PRST> and automatic white balance operation cannot be executed.	
[AWB UNABLE]	Displayed when automatic white balance operation cannot be executed. The 2nd line displays that status.	
	[S.GAIN MODE]	Displayed when super gain is active.
[CHECK FILTER]	Prompts re-confirmation of the filter switching dial position when the power is turned on and automatic white balance is active.	
[ABB ACTIVE]	Displayed when automatic black balance operation is active.	
[ABB OK]	Displayed when automatic black balance operation is ended successfully.	
[ABB BREAK]	Displayed when automatic black balance operation is forcibly ended.	
[ABB NG]	Displayed when automatic black balance operation is not ended successfully.	
[B-SHD READY]	Displayed when black shading operation is accepted by holding down the <AUTO W/B BAL> switch during automatic black balance operation.	
[B-SHD ACTIVE]	Displayed when black shading operation is active.	
[B-SHD OK]	Displayed when black shading operation is ended.	
[B-SHD BREAK]	Displayed when black shading operation is forcibly ended.	
[B-SHD NG]	Displayed when black shading operation is not ended successfully.	

(Switch selection display)

[WHITE:#]	Displayed when the <WHITE BAL> switch is switched. One of [A]/[B]/[PRST] is displayed at [#].	
	[ATW MODE]	Displayed when automatic tracking white balance operation is set.
	[∗.∗K]	Displays the currently set color temperature.
[AUTO KNEE:ON/OFF]	Displayed when the <OUTPUT>/<AUTO KNEE> selector switch where [ON] or [OFF] is assigned in the main menu → [CAMERA] → [SW MODE] → [AUTO KNEE SW] is set to <ON>/<OFF>.	
[DRS:ON/OFF]	Displayed when the <OUTPUT>/<AUTO KNEE> selector switch where [DRS] is assigned in the main menu → [CAMERA] → [SW MODE] → [AUTO KNEE SW] is set to <ON>/<OFF>.	
[GAIN:∗∗dB+∗∗↑]	Displayed when gain is switched by the <GAIN> switch or <USER> button. When digital super gain is active, that value is displayed at the same time.	
[SS:1/∗∗∗∗] or [∗∗∗.∗deg]	When the shutter speed is switched, that value is displayed.	
[SS: ► 1/∗∗∗∗] or [►∗∗∗.∗d]	Displayed when syncro scan is selected for the shutter speed.	
[CC:∗∗∗∗ ∗∗K]	Displayed when the <CC FILTER> dial position is switched.	
[ND:∗]	Displayed when the <ND FILTER> dial position is switched.	
[EXTENDER:ON/OFF]	Displays the status of the lens extender.	
[IRIS:∗∗F∗.∗]	Displayed when the iris override compensation value is altered.	

(Drop in brightness warning display)

[LOW LIGHT]	Displayed when brightness has dropped.

(Flash band compensation warning display)

[FBC OFF!]	Displayed when a flash band is detected while flash band compensation is off.
[SHUTTER&FBC ON!]	Displayed when the <SHUTTER> switch is <ON> and flash band compensation is set to on.

6 <USER> button assignment information

[UM]	Indicates the <USER MAIN> button.
[U1]	Indicates the <USER1> button.
[U2]	Indicates the <USER2> button.
[U3]	Indicates the <SHOT MARK> button.
[U4]	Indicates the <TEXT MEMO> button.
[RET]	Indicates the <RET> button.
[INHIBIT]	Displayed when the <USER> button is not operated.
[S.GAIN ∗∗dB/OFF]	Displays the selected super gain.
[DS.GAIN ∗∗↑/OFF]	Displays the selected digital super gain.
[S.IRIS ON/OFF]	Displays the super iris operation status.
[I.OVR ON/OFF]	Displays the iris override operation status.
[S.BLK –∗∗/OFF]	Displays the super black operation status. During operation, the setting value is also displayed.
[B.GAMMA ON/OFF]	Displays the operation status of black gamma (black level tone compensation).
[D.ZOOM x2/x3/x4/OFF]	Displays the digital zoom factor.
[ATW ON/OFF]	Displays the operation status of automatic tracking white balance.
[ATW LOCK ON/OFF]	Displays the lock status of automatic tracking white balance operation.
[AUD CH1/3]	Displayed when the input signal to record to audio channel 1 or 3 is switched.

[AUD CH2/4]	Displayed when the input signal to record to audio channel 2 or 4 is switched.
[REC SW]	Displayed when the <USER> button is functioning as the <REC> switch.
[Y GET ON]	Displayed when the [Y GET] function is [ON].
[RET SW]	Displayed when the <USER> button is functioning as the <RET> switch.
[SLOT SEL]	Displayed when the switch for switching the card to record to is set.
[PRE REC]	Displayed when the pre-recording mode is switched.
[USB STORAGE/ DEVICE/OFF]	Displayed when the USB operation status is switched.
[DRS ON/OFF]	Displays the operation status of the dynamic range stretcher.
[ASSIST ON/OFF]	Displays the focus assist operation status.
[C.TEMP ON/OFF]	Displays the status of the mode for changing the color temperature by the jog dial button.
[LCD B.L]	Displayed when the brightness of the LCD monitor backlight is switched.
[SHOT MARK]	Displayed when shot marks are added or deleted.
[TEXT MEMO]	Displayed when a text memo is recorded.
[WFM]	Displayed when the waveform monitor is switched.
[FBC ON/OFF]	Displays the operation status of the flash band compensation function.
[EVF CLR]	Displays the color status of the viewfinder.
[REC MEDIA]	Displayed when the slot of the media used for recording is switched to [P2] (P2 memory card slots 1/2) or [mP2] (microP2 memory card slots 3/4).
[CAM RET]	Displayed when the button assigned with the camera return function is pressed.
[REC CHECK]	Displayed when the button assigned with the recording check function is pressed.

7 Focus bar display

Displays the high-frequency component of the video after conversion to a graph at the bottom left of the viewfinder. For details, refer to “Focus assist function” (page 80).

8 Digital zoom ratio display

Displays the digital zoom factor.

[DZx2]	2 times
[DZx3]	3 times
[DZx4]	4 times

9 Extender

[EX]	Displayed when the lens extender is used.

10 Color temperature

[∗.∗K]	Displays the color temperature assigned to <A>, <B>, and <PRST> of the <WHITE BAL> switch. (This is sometimes a memory value at execution of automatic white balance and sometimes a menu setting value.) Not displayed when auto tracking white balance is performed.

11 Filter position

[1] to [4]	Displays the position of the <ND FILTER> dial.
[A] to [D]	Displays the position of the <CC FILTER> dial.
[–] (flashing)	The filter position is not set to the specified position.

12 <WHITE BAL> switch position

[A]	The <WHITE BAL> switch is set to <A>.
[B]	The <WHITE BAL> switch is set to <B>.
[P]	The <WHITE BAL> switch is set to <PRST>.
[T]	The switch is set to [ATW]. Note, however, that this flashes when brightness and color are outside the operation range.

13 Dynamic range stretcher (DRS) function display

[DRS]	Displayed when the image level in high-brightness areas is compressed and the dynamic range is stretched.

14 Incremental gain display

Displays the value when incremental gain is functioning.

[6 ↑]/[10 ↑]/[12↑]/[15↑]/[20↑]/[24↑]/[28↑]/[34↑]

15 Gain display

Displays the gain value of the image amplifier configured.

[∗∗dB]	Displays the current gain value.
[AGC]	Displayed when auto gain control is active.

16 System information and warning

[SYSTEM ERROR E-∗∗]	Displayed when an abnormality in internal microcomputer communication or the reference signal has occurred. From here on, recording and playback are not possible. The error code is displayed on ∗∗. For details, refer to “Error code” (page 196).
[TURN POWER OFF E-∗∗]	Displayed when operation is no longer possible after P2 card is removed during accessing of the P2 card, for example, during recording/playback or formatting. The error code is displayed on ∗∗.

[TEMPORARY PAUSE IRREGULAR SIG]	Displayed when the reference signal is disrupted and recording is suspended during generator lock input, etc.
[EOM]	Displayed when there is no space remaining on the P2 card.
[BOS]	Displayed when the playback position is at the beginning of all clips.
[EOS]	Displayed when the playback position is at the end of all clips.
[CANNOT REC]	Displayed when recording to the P2 card is not possible, for example, immediately after power is turned on or the P2 card is inserted. Detailed information of the P2 card can be checked in the mode check [FUNCTION] screen. For details, refer to “Mode check display” (page 77).
[CANNOT PLAY]	Displayed when playback is not possible, for example, when there are no clips on the P2 card or the P2 card is not inserted.
[TEXT MEMO]	Displayed when a text memo is recorded.
[TEXT MEMO INVALID]	Displayed when a text memo could not be recorded.
[MARK ON/OFF]	Displayed when shot marks are added or deleted. For details on shot marks, refer to “Shot mark recording function” (page 39).
[SHOT MARK INVALID]	Displayed when shot marks cannot be added.
[UPDATING]	Displayed when playback operation is not accepted during updating of the clip information for playback.
[USB DEVICE]	Displayed when the USB device mode is set. Flashes during migration through modes, and after migration through modes is completed, [CONNECTED] is displayed when communication is possible and [DISCONNECTED] is displayed when communication is not possible.
[USB STORAGE]	Displayed when the USB storage mode is set. Flashes during migration through modes, and from then on, [CONNECTED] is displayed when the external hard disk is recognized successfully and [DISCONNECTED] is displayed when it cannot be recognized.
[THUMBNAIL OPEN]	Displayed during thumbnail operation.
[TC REGEN]	Displayed when the <RET> button on the lens is pressed to regenerate to the time code of the last recorded clip to the P2 card.
[SLOT SELECT]	Flashes when the <USER> button assigned with [SLOT SEL] is pressed and while switching processing of the recording slot on the P2 card is being executed.
[SLOT SELECT INVALID]	Displayed when the <USER> button assigned with [SLOT SEL] is pressed and switching processing of the recording slot on the P2 card is not possible.

For details on warnings, refer to “Warning information display” (page 196).

17 Time code display

[TCG 12:59:59:20]	Displays the time code generator value.
[TCR 12:59:59:20]	Displays the timecode reader value.
[VUBG AB CD EF 00] ([UBG AB CD EF 00])	Displays the user’s bit generator value.
[VUBR 12 34 56 78] ([UBR 12 34 56 78])	Indicates the user’s bit reader value.
[CTL –1:59:59:20]	Displays the CTL counter value.

18 Audio input line and level meter display

[----■----+]	Displays the selected channel and its audio level.
[F]	Displayed when the <AUDIO IN> switch is <FRONT>.
[W]	Displayed when the <AUDIO IN> switch is <W.L.>.
[R]	Displayed when the <AUDIO IN> switch is <REAR>.

19 Iris override display

Displays the compensation level when the iris overwrite is functioning.

[++]	Aperture opens by about 1.
[+]	Aperture opens by about 0.5.
[––]	Aperture closes by about 1.
[–]	Aperture closes by about 0.5.
(No display)	Reference state.

20 Super iris display

Displayed when super iris is active.

21 Iris, F value

[NC]	Displayed when the lens cable is not connected.
[OPEN]	Displayed when the lens aperture is open.
[F1.7] to [F16]	Displays the lens aperture value.
[CLOSE]	Displayed when the lens aperture is closed.

- Displayed when a lens with an aperture value display function is used. Also, flashes when the iris override is variable.

22 Super black display

Displayed when super black is active.

23 Zoom display

[Z00] to [Z99]	Displays the zoom amount. Note, however, that this item is not displayed in the case of lenses without a zoom position return even if it is set to be displayed.
[Z∗∗.∗mm]	When a serial lens is connected, the display unit can be changed in the main menu → [VF] → [VF INDICATOR] → [ZOOM/FOCUS].

24 Focus control information

Displays the focus control information with [99] to [00]. When a lens other than a serial lens is connected, the focus control information is not displayed. When a serial lens is connected, the display unit can be changed in the main menu → [VF] → [VF INDICATOR] → [ZOOM/FOCUS].

25 Information display such as pre-recording

[P-REC] (flashing)	Displayed after recording is stopped and until recording of video/audio to P2 card completely stops. Do not remove the P2 card or turn the power off until the flashing indication completely goes out. • When the pre-recording function is set to [OFF], [REC] flashes.
[P-REC ∗s/OFF] (illuminated)	Illuminated if the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed towards the <MCK/MCL> side when the pre-recording function is set to [ON]. The status is displayed when the <USER> button where [PRE REC] is assigned is pressed to switch to the pre-recording mode.

26 Gamma mode display

Displays the gamma mode currently selected by [GAMMA MODE SEL] in the main menu → [PAINT] → [GAMMA].
[HD]/[SD]/[FLK1]/[FLK2]/[FLK3]/[FREC]/[VREC]

27 Lock status display of auto tracking white balance

Displayed when the <USER> button where [ATW LOCK] is assigned is pressed and the color temperature is fixed while auto tracking white balance is active.

28 Type of marker

Displays the type of currently displayed marker.
[MKR:A/B/OFF]

29 Y GET brightness display

In the Y GET mode, the image level in the frame displayed near the center of the screen is displayed as 0% to 109%.

30 High-sensitivity mode display

Displayed when set [HIGH SENS.] in the main menu → [PAINT] → [[S] CAMERA SETTING] → [SHOOTING MODE].

31 Flash band compensation (FBC) function display

Displayed when the flash band compensation function is activated.

32 Chromatic aberration compensation

[CAC]	Displayed when the chromatic aberration compensation function is active.

33 Battery charge level/voltage

[∗∗.∗V]	Displays the battery charge level in 0.1 V units.
[∗∗∗%]	Displays the charge level of batteries with charge level information in %.
[EMP]	Displayed when there is no charge level on batteries with charge level information or the level is at the near end setting value or below.
[MAX]	Displayed when batteries with charge level information are fully charged.

34 P2 card remaining free space

[1]	This is the slot No. This is displayed in black and white inversion when the slot No. is recording destination. It flashes while the card is being recognized.
[∗∗∗min]	Displays the remaining space on the media in each slot. During a near end, it flashes. 0 to 599 indicates minutes, while 600 minutes or longer indicates hours.
(No display)	Not displayed when a card is not inserted.
[END]	Displayed when there is no space remaining on each card.
[WP]	Displayed when the P2 card is write-protected.
[ERR]	Displayed in the case of format errors or authentication errors.
[LOOP ∗∗∗min]	Displayed when the loop recording mode is set. During the mode check, the 2nd line displayed the standard recording time of loop recording. [LOOP] flashes when loop recording is not possible, for example, when there is no more space remaining on the P2 card.

35 Recording media display

From among P2 and microP2 memory card slots, displays the slots that can be used for recording/playback, which is set in the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA].

[P2]	P2 memory card slot
[mP2]	microP2 memory card slot

36 System mode

Displays the mode in which the camera is operating.

[1080-59.94P]	1080/59.94 progressive mode
[1080-59.94i]	1080/59.94 interlaced mode
[1080-50P]	1080/50 progressive mode
[1080-50i]	1080/50 interlaced mode
[480-59.94i]	480/59.94 interlaced mode
[576-50i]	576/50 interlaced mode

37 Recording operation status display

[REC]	Displayed when set [CHAR] in the main menu → [REC/PB] → [REC/PB SETUP] → [REC TALLY]. This is also displayed when set [ON] in the main menu → [VF] → [VF INDICATOR] → [REC STATUS].

38 Recording format

Displays the recording method.

[AVC-I100], [AVC-I50], [AVC-G50], [AVC-G25], [DVCPRO HD], [DVCPRO50], [DVCPRO], [DV]

Checking and displaying shooting status

Each of the display items can be set to display/hide in the setting menu. All display items can be hidden at a time. Also, the mode check [STATUS] screen is displayed when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed towards the <MCK/MCL> side. During mode check, almost all items are displayed including usually hidden items so that the shooting status can be checked. For details on the mode check, refer to “Mode check display” (page 77).

No	Display item name	Selection of menu item display/ hide		Display status		Display batch off*1	Mode check display	Display in playback mode
				At all times	Relevant menu items only			
1	Shutter speed/mode	[VF INDICATOR] → [SHUTTER]	✓	—	✓	✓	✓	—
2	Camera mode	[VF INDICATOR] → [CAMERA MODE]	✓	✓	—	✓	✓	—
3	Proxy information display	[VF INDICATOR] → [PROXY DISP] or [PROXY SETUP] → [PROXY DISP]	✓	—	✓	✓*3	✓	—
4	SD memory card status display	[VF INDICATOR] → [PROXY DISP] or [PROXY SETUP] → [PROXY DISP]	✓	—	✓	✓*3	✓	—
5	Camera warning, notification display area	[VF DISPLAY] → [DISP MODE]	✓*4	—	✓	—	✓	—
6	<USER> button assignment information	[VF DISPLAY] → [DISP MODE]	✓	—	✓	—	✓	—
7	Focus bar display	[VF INDICATOR] → [FOCUS BAR]	✓	✓	—	✓	✓	—
8	Digital zoom ratio display	—	—	—	✓	✓	✓	—
9	Extender	[VF INDICATOR]→[EXTENDER]	✓	—	✓	✓	✓	—
10	Color temperature	[VF INDICATOR] → [COLOR TEMP]	✓	✓	—	✓	✓	—
11	Filter position	[VF INDICATOR]→[FILTER]	✓	✓	—	✓	✓	—
12	<WHITE BAL> switch position	[VF INDICATOR] → [WHITE]	✓	✓	—	✓	✓	—
13	Dynamic range stretcher (DRS) function display	[VF INDICATOR] → [DRS]	✓	—	✓	✓	✓	—
14	Incremental gain display	[VF INDICATOR] → [GAIN]	✓	—	✓	✓	✓	—
15	Gain display	[VF INDICATOR] → [GAIN]	✓	✓	—	✓	✓	—
16	System information and warning	[VF INDICATOR] → [SYSTEM INFO]	✓	—	✓	—	✓	✓
17	Time code display	[VF INDICATOR] → [TC]	✓	✓	—	✓	✓	✓
18	Audio input line and level meter display	[VF INDICATOR] → [AUDIO LVL]	✓	✓	—	✓	✓*5	—
19	Iris override display	[VF INDICATOR] → [IRIS]	✓	—	✓	✓	✓	—
20	Super iris display	[VF INDICATOR] → [IRIS]	✓	—	✓	✓	✓	—
21	Iris, F value	[VF INDICATOR] → [IRIS]	✓	✓*6	—	✓	✓	—
22	Super black display	[VF INDICATOR] → [IRIS]	✓	—	✓	✓	✓	—
23	Zoom display	[VF INDICATOR] → [ZOOM/FOCUS]	✓	✓*6	—	✓	✓	—
24	Focus information display	[VF INDICATOR] → [ZOOM/FOCUS]	✓	✓*6	—	✓	✓	—
25	Information display such as pre-recording	[VF INDICATOR] → [P-REC/i-REC]	✓	—	✓	—	✓	—
26	Gamma mode display	[VF INDICATOR] → [GAMMA MODE]	✓	✓	—	✓	✓	—
27	Lock status display of auto tracking white balance	[VF INDICATOR] → [WHITE]	✓	—	✓	✓	✓	—
28	Type of marker	[VF DISPLAY] → [DISP MODE]	✓	—	✓	—	✓	—
29	Y GET brightness display	—	—	—	✓	✓	✓	—
30	High-sensitivity mode display	[VF INDICATOR] → [SHOOTING MODE]	✓	—	✓	✓	✓	—

No	Display item name	Selection of menu item display/ hide		Display status		Display batch off*1	Mode check display	Display in playback mode
				At all times	Relevant menu items only			
31	Flash band compensation (FBC) function display	[VF INDICATOR] → [FBC]	✓	—	✓	✓	✓	—
32	Chromatic aberration compensation	[VF INDICATOR] → [CAC]	✓	—	✓	✓	✓	—
33	Battery charge level/voltage	[VF INDICATOR] → [BATTERY]	✓	✓	—	✓*3	✓	—
34	P2 card remaining free space	[VF INDICATOR] → [P2CARD REMAIN]	✓*2	✓	—	✓*2	✓	—
35	Recording media display	[VF INDICATOR] → [REC MEDIA]	✓	✓	—	✓	✓	—
36	System mode	[VF INDICATOR] → [SYSTEM MODE]	✓	✓	—	✓	✓	—
37	Recording operation status display	[VF INDICATOR] → [REC STATUS] or [REC/PB SETUP] → [REC TALLY]	✓	—	✓	—	✓	—
38	Recording format	[VF INDICATOR] → [REC FORMAT]	✓	✓	—	✓	✓	—

*1 Set in the main menu → [VF] → [VF DISPLAY] → [DISP CONDITION].
*2 Warnings and display during changes cannot be turned off.
*3 Warning cannot be turned off.
*4 Partially displayed.
*5 Displays the input information of all four channels.
*6 Not displayed when there is no information.

Mode check display

The camera settings and status can be displayed on the viewfinder screen.

Pushing the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch on the camera towards the <MCK/MCL> side switches the six screens.

[STATUS] screen display → [!LED] screen display → [FUNCTION] screen display → [AUDIO] screen display → [CAC] screen display → [USER SW STATUS] screen display → no display

Each screen is displayed for approximately five seconds. Pushing the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side while the screen is displayed moves the display to the next screen. [ON]/[OFF] of each screen display can be selected in the main menu → [VF] → [MODE CHECK IND]. For details on [STATUS] screen displays, refer to “Checking and displaying shooting status” (page 76).

[!LED] screen

Displays items that are causes of [!LED] lighting.

- [!] is attached to items currently selected at [!LED].
- [■] is attached to items currently targeted for [!LED] lighting.

[GAIN(0dB)]	Displays the gain status.
[DS.GAIN]	Displays the digital super gain value.
[SHUTTER]	Displays the shutter status.
[WHITE PRE.]	Displays the white balance status.
[EXTENDER]	Displays the extender status by [EX]/[OFF].
[B.GAMMA]	Displays the black gamma status by [ON]/[OFF].
[MATRIX]	Displays the [MATRIX] status by [A]/[B]/[OFF].
[COLOR COR.]	Displays the [COLOR CORRECTION] status by [ON]/[OFF].
[FILTER]	Displays the filter status.
[ATW]	Displays the status of automatic tracking white balance.

[FUNCTION] screen

Displays the video output status and information of the recording media.

[SDI OUT1]	—	Displays the status of the signal output from the <SDI OUT1> terminal.
	[OUTPUT]	Displays the status of [MEM]/[CAM] or [OFF] set by [SDI OUT1] and [SDI OUT1 MODE] in the main menu → [I/F SETUP] → [OUTPUT SEL].
	[TYPE]	Displays the format of the signal output from the <SDI OUT1> terminal by [HD-SDI]/[SD-SDI].
	[CHAR]	Displays the superimposition status of characters selected in the main menu → [I/F SETUP] → [OUTPUT SEL] → [SDI OUT1 CHAR] by [ON]/[OFF].

[SDI OUT2]	—	Displays the status of the signal output from the <SDI OUT2> terminal.
	[OUTPUT]	Displays the status of [MEM]/[CAM] or [OFF] set by [SDI OUT2] and [MONITOR OUT MODE] in the main menu → [I/F SETUP] → [OUTPUT SEL].
	[SELECT]	Displays the signal format set by [SDI2/HDMI OUT] and [1080P SDI2/HDMI OUT] in the main menu → [I/F SETUP] → [OUTPUT SEL] by [SYSTEM]/[DOWNCON]/[1080i].
	[CHAR]	Displays the position of the <MON OUT CHARATER> switch by [ON]/[OFF].
[P2CARD STATUS]	—	Displays the status of the P2 card inserted in the card slot, remaining capacity and total used capacity. The statuses of cards to be displayed are as follows: [ACTIVE]/[ACCESSING]/[INFO READING]/[FULL]/[PROTECTED]/[NOT SUPPORTED]/[FORMAT ERROR]/[AUTH NG]/[REC IMPOSSIBLE]/[NO CARD] For details, refer to “P2 card access LEDs and status of P2 cards” (page 32).
	[TOTAL P2/mP2]	Displays the remaining capacity/total capacity totaled for slots 1/2 (or slots 3/4) and the recording medium ([P2] or [mP2]).
	[SLOT1] or [SLOT3]	Displays the status of the P2 card in slot 1 (or slot 3) and remaining capacity/total capacity.
	[SLOT2] or [SLOT4]	Displays the status of the P2 card in slot 2 (or slot 4) and remaining capacity/total capacity.
[PROXY]	[MEDIA]	Displays the media selection status for proxy recording. [P2]/[P2&SD]/[OFF]
	[MODE]	Displays the setting status for proxy recording mode. [STD 2CH MP4]/[SHQ 2CH MOV]/[HQ 4CH MOV]/[HQ 2CH MOV]/[LOW 2CH MOV]
	[SUPER]	Displays the superimposed setting status of the time code. [UPPER]/[LOWER]/[OFF]
	[PROXY ERROR]	Displays the operation error on the proxy module.

[AUDIO] screen

Displays audio settings and the selection status of each recording channel.

[SAMPLE RES]	—	Displays the number of audio recording bits.
[MIC POWER (MENU)]	—	Displays the menu setting status of power supply to the microphone.
	[FRONT]	Displays the power supply status to the front microphone currently set in the main menu → [I/F SETUP] → [MIC/AUDIO] → [FRONT MIC POWER] by [ON]/[OFF].
	[REAR]	Displays whether to set supply of power to the microphone on the <AUDIO IN> terminal at the rear in the main menu → [I/F SETUP] → [MIC/AUDIO] → [REAR MIC POWER]. • [OFF]: Power is not supplied to the microphone. • [ON]: Power is supplied to the microphone when the <LINE>/<MIC> selector switch is set to <MIC> and the microphone input power selector switch is set to <+48V>.
[VR SELECT]	—	Displays which of [CH1/2] and [CH3/4] the audio level adjustment dial is to be set as enabled to in the main menu → [I/F SETUP] → [MIC/AUDIO] → [VR SELECT].
[LEVEL]	[CH1/2/3/4]	Displays the recording level adjustment method currently selected on each channel. • [VR]: Displayed when manual adjustment using the adjustment dial is set. • [MENU]: Displayed when manual adjustment using [LVL CONTROL CH3(CH1)]/[LVL CONTROL CH4(CH2)] is set in the main menu → [I/F SETUP] → [MIC/AUDIO]. • [AUTO]: Displayed when automatic adjustment is set.
[F.VR]	[CH1/2/3/4]	Displays by [ON]/[OFF] whether the <F.AUDIO LEVEL> dial is enabled on the channel to which [VR] (manual adjustment by adjustment dial) is displayed in [LEVEL].
[A.IN]	[CH1/2/3/4]	Displays the input status of each channel by [FRONT] (front)/[REAR] (rear)/[W.L.] (wireless).
[METER]	[CH1/2/3/4]	Displays the recording level of each channel.

[CAC INFO] screen

Displays the operation status or information of CAC.

[CAC CONT]	Displays the operation status of CAC. • [ON]: [ON] is set to in the main menu → [MAINTENANCE] → [CAC ADJ] → [CAC CONTROL], and CAC is active. • [STOP]: [ON] is set to in the main menu → [MAINTENANCE] → [CAC ADJ] → [CAC CONTROL], however, CAC operation stops under certain data or lens conditions. • [OFF]: [OFF] is set to in the main menu → [MAINTENANCE] → [CAC ADJ] → [CAC CONTROL], and CAC is not active.
[CAC MODE]	Displays the operation mode of CAC. • [AUTO]: The CAC file is automatically selected.
[CONNECT LENS TYPE]	Displays the lens ID of the currently connected digital lens.
[SELECT FILE TITLE]	Displays the title and the file version of the CAC file currently used in the operation. The CAC file can be set in the main menu → [MAINTENANCE] → [CAC ADJ].
[CAC WARNING]	Displays a warning when operation of CAC has stopped. • [CAC LENS DATA INVALID]: This is displayed, for example, when the response data from the lens is not supported. • [LENS INIT. NOT COMPLETED]: This is displayed, for example, when initialization of the lens cannot complete.

[USER SW] screen

Displays the assignment status of each <USER> button. For details, refer to “Assigning functions to <USER> buttons” (page 56).

[USER SW]	[USER MAIN (UM)]	Displays the assignment to the <USER MAIN> button.
	[USER1 (U1)]	Displays the assignment to the <USER1> button.
	[USER2 (U2)]	Displays the assignment to the <USER2> button.
	[SHOT MARK (U3)]	Displays the assignment to the <SHOT MARK> button.
	[TEXT MEMO (U4)]	Displays the assignment to the <TEXT MEMO> button.
[OTHER ASSIGN]	[RET SW]	Displays the assignment to the <RET> button on the lens.
	[GAIN L]	Displays the gain value assigned to <L> of the <GAIN> switch.
	[GAIN M]	Displays the gain value assigned to <M> of the <GAIN> switch.
	[GAIN H]	Displays the gain value assigned to <H> of the <GAIN> switch.
	[S.GAIN]	Enumerates and displays the gain value assigned as super gain.
	[DS.GAIN]	Enumerates and displays the gain value assigned as digital super gain.

Display modes and setting changes/adjustment result messages

You can select how messages are displayed in the viewfinder and how messages for notifying the details of changes to settings and adjustment results are displayed. For example, whether to display or hide some items can be selected in the main menu → [VF] → [VF DISPLAY] → [DISP MODE]. For details on operation methods, refer to “Setting menu basic operations” (page 134).

■ Setting changes/adjustment result messages and [DISP MODE] settings

(✓: Display, —: hide)

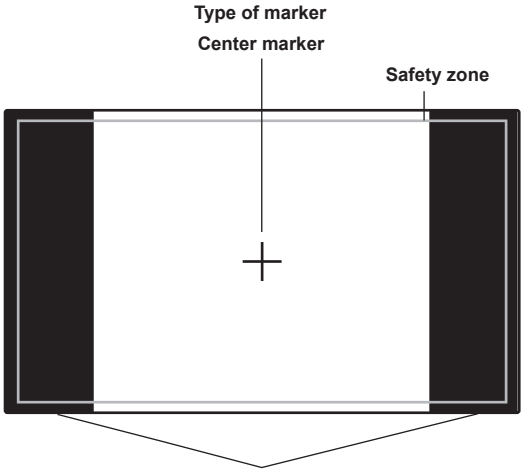
Status for displaying messages	Message	[DISP MODE] setting		
		[1]	[2]	[3]
When the <CC FILTER> dial/<ND FILTER> dial selection is changed	[FILTER:n] ([n] = [1], [2], [3], [4]), [m] ([m] = [A], [B], [C], [D])	—	—	✓
When the gain setting is changed	[GAIN:ndB] ([n] = [−6], [−3], [0], [3], [6], [9], [12], [15], [18], [21], [24], [27], [30])	—	—	✓
When the <WHITE BAL> switch setting is changed	[WHITE:n] ([n] = [A], [B], [PRE])	—	—	✓
When the <OUTPUT>/<AUTO KNEE> selector switch is set to <ON> or <OFF>	[AUTO KNEE:ON] (or [OFF])	—	✓	✓
When the shutter speed/mode setting is changed	[SS:1/100] (or [1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [∗∗∗.∗d], [►1/∗∗.∗] or [►∗∗∗.∗d])	—	✓	✓
When white balance is adjusted	Example) [AWB A OK 3.2 K]	—	✓	✓
When black balance is adjusted	Example) [ABB OK]	—	✓	✓
When the extender is selected	Example) [EXTENDER ON]	—	—	✓
When the <USER> button is selected	Example) [UM:S.GAIN 30dB]	—	✓	✓
When the marker select function is selected	Example) [MKR:A]	—	—	✓
When in the iris override mode	Example) [++F5.6]	—	✓	✓
When the CAC lens is mounted or unmounted	Example) [CAC LENS DATA INVALID]	—	✓	✓

Setting the marker display

Select the type and display of the center marker, safety zone marker, safety zone area, and frame marker. Select the display mode of each item in the main menu → [VF] → [VF MARKER].

Display of marker confirmation screen (marker select function)

The screen for confirming the marker status of the camera can be displayed on the viewfinder screen.



Pushing the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch on the camera towards the <MKR> side switches between [A] marker display → [B] marker display → no display

With the following settings in advance, you can check the angle of view at 14:9 and 4:3 easily by this button, if necessary. As the [A] marker information, set [14:9] in the main menu → [VF] → [VF MARKER] → [FRAME SIG], and as the [B] marker information, set [4:3] in [FRAME SIG].

Confirmation of return video signal in the viewfinder

The return video signal input to the <SDI IN> terminal can be viewed in the viewfinder while the <RET> button on the lens is held down. To activate this function, select [CAM RET] in the main menu → [CAMERA] → [SW MODE] → [RET SW].

NOTE

- The HD-Y or VBS signals of the <GENLOCK IN> terminal cannot be viewed as return video signals.

Zebra patterns display

The camera can display two types of zebra patterns.

When the <ZEBRA> switch of the viewfinder is set to <ON>, the zebra pattern currently set in the menu is displayed on the viewfinder screen.

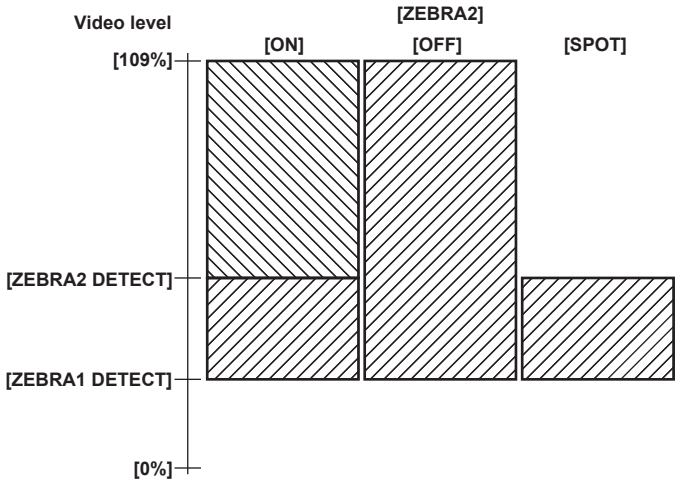
Zebra patterns can also be displayed in the video of the monitor output terminal (<SDI OUT2>, <VIDEO OUT>, <HDMI OUT>) according to settings.

The level for displaying zebra patterns can be set in the main menu → [VF] → [VF DISPLAY].

Item	Setting value	Description of settings
[ZEBRA1 DETECT]	[0%]…[70%]…[109%]	Sets the level of zebra pattern 1 tilting to the right.
[ZEBRA2 DETECT]	[0%]…[85%]…[109%]	Sets the level of zebra pattern 2 tilting to the left.
[ZEBRA2]	[ON], [SPOT], [OFF]	Selects the type of [ZEBRA2].

____ are factory settings.

[SPOT]: The image level from the setting value of [ZEBRA1 DETECT] to the setting value of [ZEBRA2 DETECT] is displayed in the zebra pattern.



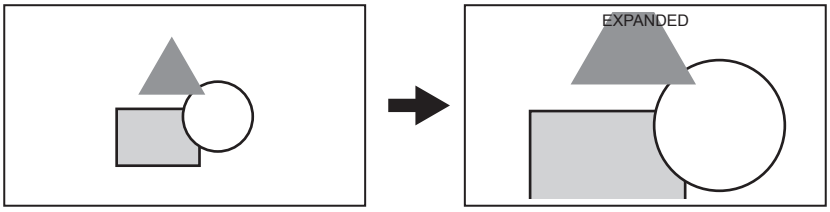
To display the zebra pattern in the video of the monitor output terminal (<SDI OUT2>, <VIDEO OUT>, <HDMI OUT>), set in the main menu → [I/F SETUP] → [OUTPUT SEL] → [MONITOR OUT ZEBRA].

Focus assist function

The focus assist function enables you to focus the target easily.

Expanded display [EXPAND]

When the <USER> button (<USER MAIN>/<USER1>/<USER2>) where [ASSIST] is assigned or the <RET> button is pressed, the center of the screen is expanded approx. three times so that you can easily bring the image into focus.



- In the expanded display, the status display and zebra pattern disappear, and [EXPANDED] is displayed at the top of the screen.

NOTE

- Viewfinder screen and LCD monitor screen are expanded.
- Expanded display is unavailable in the video output, SDI output, and HDMI output.

Focus bar display [FOCUS BAR]

The focus bar can be displayed when [ON] is set in the main menu → [VF] → [VF INDICATOR] → [FOCUS BAR].
The degree of focus is indicated by the length of the bar.

Not in focus **The bar extends to the right when the viewfinder is in-focus.**

Waveform monitor function

A waveform of the video can be displayed by assigning the waveform monitor function to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) and pressing the assigned buttons. Press the button again to return to the normal display.

- The waveform and vector displays can be switched by [WFM] (page 150) in the main menu → [CAMERA] → [SW MODE]. Whether to display the waveform monitor on either or both of the viewfinder and LCD monitor can be selected by [WFM DISP].
- The waveform is not displayed while the focus assist function [EXPAND] is active.
- The waveform display cannot be recorded.

Adjusting and setting the LCD monitor

Locking the video signal to the external reference signal

Using the LCD monitor

1 Push the <OPEN> button towards the right to open the LCD monitor.

2 Set the LCD monitor screen to the easiest-to-view position.

Rotate up to 180° in the lens direction and 90° in the direction towards you.

3 Display the screen brightness in the main menu → [I/F SETUP] → [LCD MONITOR] → [BRIGHTNESS], the color density of the screen in [COLOR LEVEL], and screen contrast in [CONTRAST].

4 Set whether to display the character of status display or the setting menu in the LCD monitor and viewfinder in the main menu → [I/F SETUP] → [LCD MONITOR] → [VF/LCD CHAR].

NOTE

- When closing the LCD monitor, be sure to close it firmly.
- Take care not to apply excessive force on the LCD monitor when it is opened. Doing so may result in a malfunction.
- Condensation sometimes forms on the LCD panel of the LCD monitor in locations subject to extreme temperature differences. If this happens, wipe with a soft, dry cloth.
- If the camera recorder is very cold, the LCD monitor will be slightly darker than normal immediately after the power is turned on. The screen will return to its regular brightness when the temperature inside increases.

Mirror shooting

When rotating the LCD monitor 180° towards the lens, the video in the LCD monitor is displayed reversed around the vertical axis if [MIRROR] is set to in the main menu → [I/F SETUP] → [LCD MONITOR] → [SELF SHOOT]. This allows shooting as if looking at a mirror image. Note, however, that only the display of the LCD monitor is reversed around the vertical axis. Recording is performed as per normal.

NOTE

- When the LCD monitor is rotated 180° with [MIRROR] selected at [SELF SHOOT], the same state as in the viewfinder is not displayed in the LCD monitor regardless of the [VF/LCD CHAR] setting.

Adjusting and setting the viewfinder

Available viewfinders

The viewfinder can be used on the camera.

Recording mode	Viewfinder image	Viewfinder
HD	Camera image	✓
	Playback	✓
	Return image (HD SDI)	✓
	HD SDI input	✓
SD	Camera image	✓*1
	Playback	✓*2
	Return image (SD SDI)	✓*3
	SD SDI input	✓

Return signals that can be displayed in the viewfinder and SDI input signals are signals of the recording format currently set to the camera.

*1 HD signals

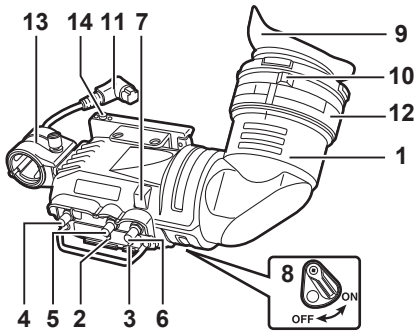
*2 When [480-59.94i] or [576-50i] is selected in the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ], and camera image and playback image are switched, the image in the viewfinder is sometimes temporarily disrupted. This is not a malfunction.

*3 If [480-59.94i] or [576-50i] is set in the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ], and [INT] is set in the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK], the image is sometimes disrupted in the vertical direction when the return video image of the SDI input signal is checked in the viewfinder. This phenomenon is not a malfunction. Disruption can be eliminated by setting [GENLOCK] to [SDI IN].

Names of parts in viewfinder

For details on method of use, refer to the Operating Instructions for the respective viewfinder.

For AJ-HVF21KG



1 Viewfinder
Black and white video can be viewed during recording and playback. The operation status of the camera, setting related warning displays, messages, zebra patterns, markers (safety zone marker, center marker), and other information can also be viewed.

2 <ZEBRA> (zebra pattern) switch
Displays the zebra pattern in the viewfinder.
<ON>: Displays zebra patterns.
<OFF>: Does not display zebra patterns.

3 <TALLY> switch
Controls the front tally lamp.
<HIGH>: Makes the front tally lamp brighter.
<OFF>: Turns out the front tally lamp.
<LOW>: Makes the front tally lamp darker.

4 <PEAKING> (peaking) dial
Adjusts the contour of the video in the viewfinder to make it easier to focus. This does not affect the output signals from the camera.

5 <CONTRAST> (contrast) dial
Adjusts the contrast of the screen in the viewfinder. This does not affect the output signals from the camera.

6 <BRIGHT> (brightness) dial
Adjusts the brightness of the screen in the viewfinder. This does not affect the output signals from the camera.

7 Front tally lamp
Operates when the <TALLY> switch is at the <HIGH> or <LOW> position, and lights during shooting. It also flashes in the same way as the [REC] lamp in the viewfinder and displays warnings.
The brightness when it is lit can be switched by the <TALLY> switch (<HIGH> or <LOW>).

8 Back tally lamp
Lights during shooting. It also flashes in the same way as the [REC] lamp in the viewfinder and displays warnings. The back tally lamp is hidden when the lever is pushed towards the <OFF> side.

9 Eyepiece
Do not point the eyepiece directly at the sun. Doing so might damage the devices inside.

10 Visibility adjusting ring
Adjust this ring to match the visibility of the cameraman so that the image on the viewfinder screen appears the sharpest. The visibility adjustment range of the viewfinder is <– 0.9 D> to <– 4.4 D>. For details on the eyepiece for presbyopia, consult your dealer.

11 Connector plug

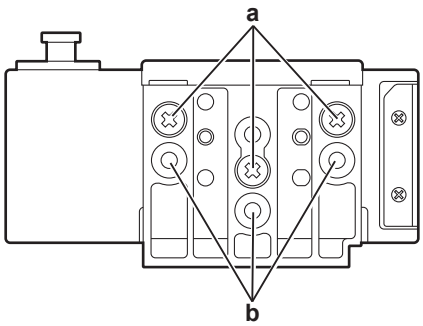
12 Lock ring

13 Microphone holder

14 Viewfinder stopper
Used for attaching and detaching the viewfinder.

■ Mounting a large lens

If there is no room between the top surface of the lens and the bottom surface of the viewfinder, the position of the slide rail can be shifted slightly upwards by repositioning the screw.



a: Normal positions of securing screws

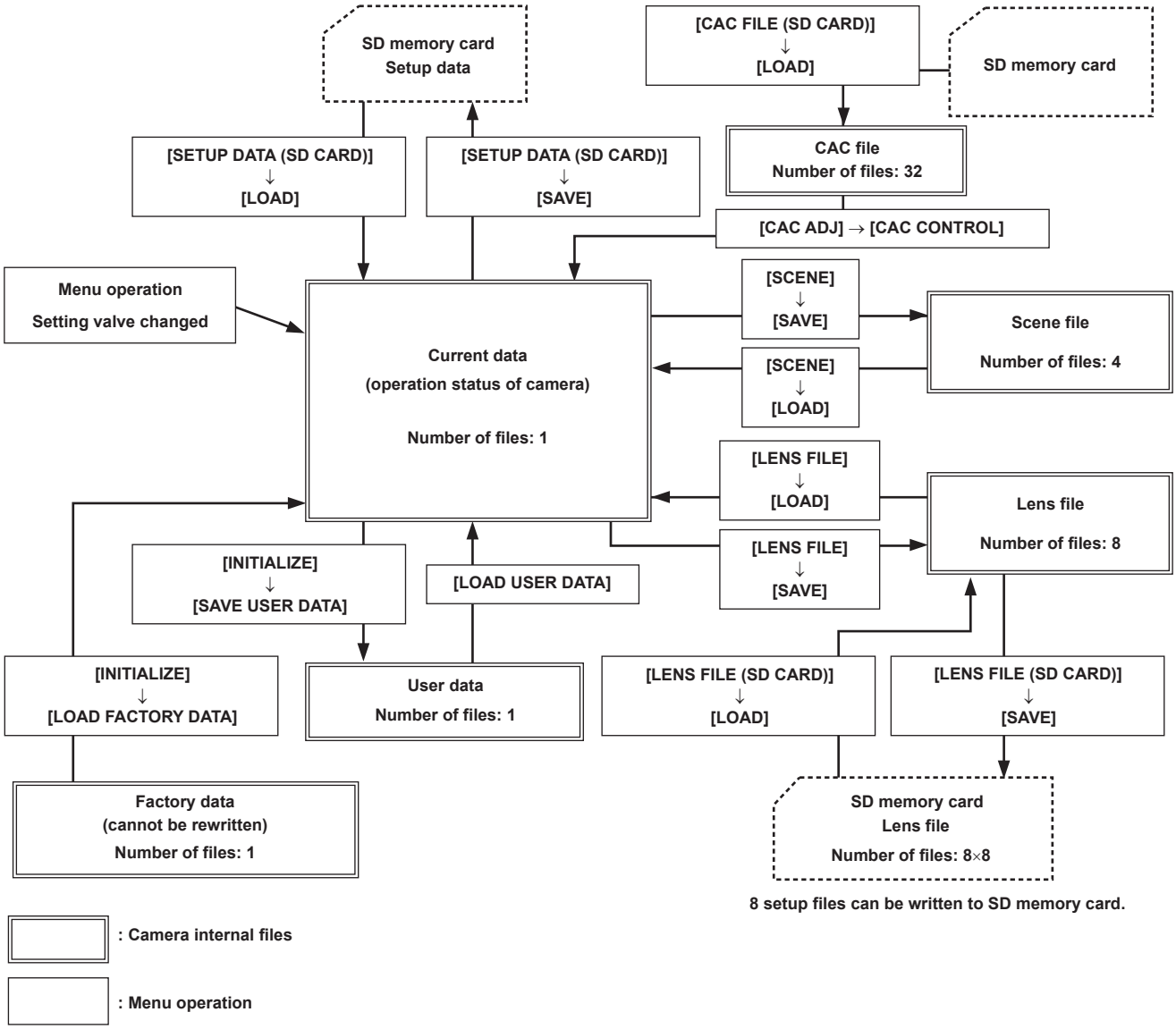
b: By repositioning and securing the three screws at these locations, the position of the slide rail can be shifted upwards by approx. 8 mm.

Handling setting data

Setting data file configuration

The camera has six file data areas.

Factory data	This area stores factory settings. It cannot be rewritten by menu operation.
User data	This area stores values set by menu operation. As default data, factory data is stored here.
Current data	This area stores the operation status of the camera. Setting values in this area are changed by menu operation.
Scene file	Four scene files are provided.
Lens file	Eight lens files are provided. Eight of these files can be saved together as a single file on SD memory card.
CAC file	This area stores 32 chromatic aberration compensation data.



NOTE

- For details on items for setup data, user data, and scene file, etc., refer to “Setting items to [USER MENU] and loading/reading the settings to a data file” (page 170).

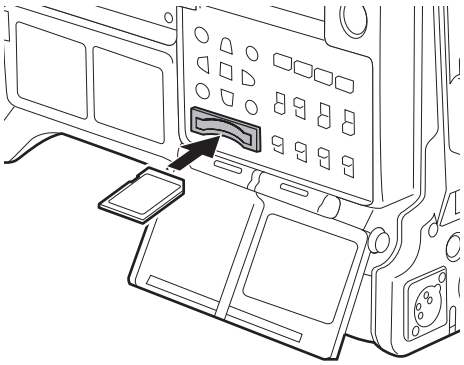
Setting up using SD memory cards

An SD memory card (optional) can be used as a setup card that stores setting menu content.
Use of this data allows you to quickly reproduce optimum setup states.

Handling SD memory cards

The SD memory card can be removed and inserted, either before or after the power is turned on.

Inserting SD memory cards



1 Open the slot cover.

2 Insert the card into the SD memory card slot with the label side of the SD memory card (optional) upward, and close the slot cover.

NOTE

- The SD memory card must be inserted with the correct side facing the SD card slot. If the SD memory card is hard to insert, it may be reversed or upside-down. Do not force it into the slot. Check the orientation of the card before re-inserting it.
- On the camera, use SD memory cards that are compliant with the SD, SDHC or SDXC standards.
- For details on handling SD memory cards, refer to “Cautions when using SD memory cards” (page 22).

Removing SD memory cards

After opening the slot cover and making sure that the busy lamp is not illuminated, push the SD memory card further into the main unit and then release. This releases the SD memory card from the card slot. Remove the SD memory card and close the slot cover.

Note the following points when using or storing memory cards.

- Avoid high temperature and humidity.
- Avoid water droplets.
- Avoid charging with electricity.

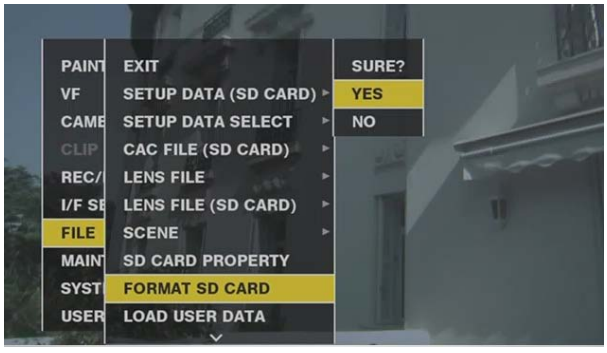
Store the SD memory card with the card still inserted into the camera and with the slot cover closed.

Performing operations on SD memory cards

To perform operations such as formatting an SD memory card, writing setting data to an SD memory card, or reading the written data, perform [FORMAT SD CARD] and [SETUP DATA (SD CARD)] in the main menu → [FILE].

If the SD memory card that was formatted in a standard other than the SD/SDHC/SDXC standards on a device other than the camera is inserted, [LOAD] or [SAVE] operation of the file cannot be performed. Format the SD memory card again.

Formatting SD memory cards



1 Select main menu → [FILE] → [FORMAT SD CARD], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

2 Select [YES] in the confirmation screen, and press the jog dial button (or <SET> button).

To not format the memory card, select [NO], and press the jog dial button (or <SET> button).

3 When the completion message is displayed, select [OK], and press the jog dial button (or <SET> button).

For details on error messages, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

NOTE

- SD memory cards can also be formatted from the thumbnail screen.
  For details, refer to “Formatting SD memory cards” (page 118).
- Data deleted as a result of formatting cannot be restored. Always check the data before formatting.

Saving and loading setup files

Specified menu items can be saved to SD memory cards and loaded to the camera.
There are two operations for saving to SD memory card: [SAVE] overwriting an existing file and [SAVE AS] creating a new file.

Overwriting a setup file on SD memory card

Select the type of menu to write beforehand in the main menu → [FILE] → [SETUP DATA SELECT].

Fig. 1

NO FILE NAME TITLE DATE TIME
EXIT
1 setup003 Title3_01 2013-JUL-03 22:06:08
2 setup002 Title2 2013-JUL-03 17:41:54
3 setup001 Title1 2013-JUL-03 17:30:38

Fig. 2

1 Select [SAVE] in the main menu → [FILE] → [SETUP DATA (SD CARD)], and press the jog dial button (or <SET> button).

The list of setup files currently saved on the SD memory card is displayed.

2 Select the file to overwrite from the list.

The title entry screen and keyboard are displayed.

3 Enter the desired characters with the keyboard. (Fig. 1)

4 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

5 Select [YES], and press the jog dial button (or <SET> button).

The file is saved and the file list is updated. (Fig. 2)
For details on error messages if an error message is displayed, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

Saving a new setup file on SD memory card

Select the type of menu to write beforehand in the main menu → [FILE] → [SETUP DATA SELECT].

1 Select [SAVE AS] in the main menu → [FILE] → [SETUP DATA (SD CARD)], and press the jog dial button (or <SET> button).

The file name entry screen and keyboard are displayed.

2 Enter the desired characters with the keyboard.

3 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

4 Select [YES], and press the jog dial button (or <SET> button).

After the file name is set, the title entry screen and keyboard are displayed.

5 Enter the desired characters with the keyboard.

6 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

7 Select [YES], and press the jog dial button (or <SET> button).

Saving of the title name begins.

8 When the completion message is displayed, press the jog dial button (or <SET> button).

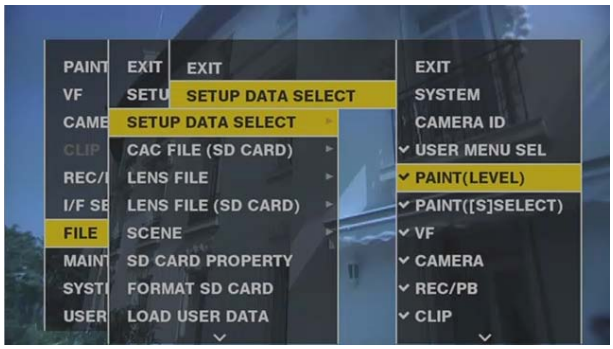
For details on error messages if an error message is displayed, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

NOTE

- Setup files saved on the camera cannot be used on other models.
- Setup files saved on other models cannot be used on the camera.

Reading setup data written to SD memory card

Select the type of menu to read beforehand in the main menu → [FILE] → [SETUP DATA SELECT].



1 Select [LOAD] in the main menu → [FILE] → [SETUP DATA (SD CARD)], and press the jog dial button (or <SET> button).

A list of setup files stored in the specified folder in the SD memory card is displayed.

2 Select the file name to read, and press the jog dial button (or <SET> button).

The confirmation screen is displayed.
If [SYSTEM RESTART] is displayed on the confirmation screen, the camera will restart after reading is complete.

3 Select [YES], and press the jog dial button (or <SET> button).

Loading of the file begins.
For details on error messages if an error message is displayed, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

How to use user data

The content of setting data can be written to and read written data from user area on the camera’s internal memory.
Use of this data allows you to quickly reproduce optimum setup states.

Writing setting data to user area

1 Select [SAVE USER DATA] in the main menu → [FILE] → [INITIALIZE], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

2 Select [YES], and press the jog dial button (or <SET> button).

3 When the completion message is displayed, press the jog dial button (or <SET> button).

Reading written user data

1 Select [LOAD USER DATA] in the main menu → [FILE], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.
If [SYSTEM RESTART] is displayed on the confirmation screen, the camera will restart after reading out is complete.

2 Select [YES], and press the jog dial button (or <SET> button).

Reading out of the file begins.

How to use scene file data

The content of setting data can be written to and read written data from scene file area on the camera’s internal memory. Four types of scene files can be registered. Use of this data allows you to quickly reproduce optimum setup states.

Writing setting data for scene files

1 Select [SAVE] in the main menu → [FILE] → [SCENE], and press the jog dial button (or <SET> button).

The list of scene files currently saved in camera memory is displayed.

2 Select the file to write from the list.

The title entry screen and keyboard are displayed.

3 Enter the desired characters with the keyboard.

4 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

5 Select [YES], and press the jog dial button (or <SET> button).

The file is saved and the file list is updated.

Reading setting data for scene files

1 Select [LOAD] in the main menu → [FILE] → [SCENE], and press the jog dial button (or <SET> button).

The list of scene files currently saved in camera memory is displayed.

2 Select the file name to load, and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

3 Select [YES], and press the jog dial button (or <SET> button).

Loading of the file begins.

4 When the completion message is displayed, press the jog dial button (or <SET> button).

Initializing (clearing) setting data for scene files

1 Select [CLEAR] in the main menu → [FILE] → [SCENE], and press the jog dial button (or <SET> button).

The list of scene files currently saved in camera memory is displayed.

2 Select the file name to delete, and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

3 Select [YES], and press the jog dial button (or <SET> button).

Deletion (clearing) of the file begins.

How to restore menu setting status to factory setting values

The menu setting status on the camera can be returned to factory setting status.

1 Select [LOAD FACTORY DATA] in the main menu → [FILE] → [INITIALIZE], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.
If [SYSTEM RESTART] is displayed on the confirmation screen, the camera will restart after reading out is complete.

2 Select [YES], and press the jog dial button (or <SET> button).

Reading out of data for the factory setting begins.

NOTE

- Data scene files and lens files and data saved as user data is not deleted by performing this operation.

Lens file

Eight lens files are stored to internal memory on the camera.
Eight titles (total 64) of lens files can be written to SD memory cards with eight lens files saved as a single title.
The following data is recorded to lens files:

- Title name
- White shading compensation values
- Flare compensation values
- RB gain offset compensation values

How to create lens files

Adjusting the white shading

For details on adjusting white shading, refer to “White shading compensation” (page 98).

Adjusting flare

Adjust flare by [LENS R FLARE], [LENS G FLARE] and [LENS B FLARE] in the main menu → [MAINTENANCE] → [LENS FILE ADJ].

Adjusting RB gain offset

Compensate for changes in white balance that occur when the lens is replaced.

1 Mount the lens to be used as a reference on the camera.

2 Shoot a grayscale chart under appropriate lighting (2000 lx or 3200 K preferred).

3 Set the <WHITE BAL> switch to <A>.

4 **Adjust the lens aperture so that the white window in the center of the grayscale chart is about 80%.**

5 **Press the <AUTO W/B BAL> switch towards <AWB>.**

White balance is automatically adjusted.

6 **Measure the signal level of RGB in the waveform monitor.**

7 **Replace the lens with the one to be used for creating the lens file.**

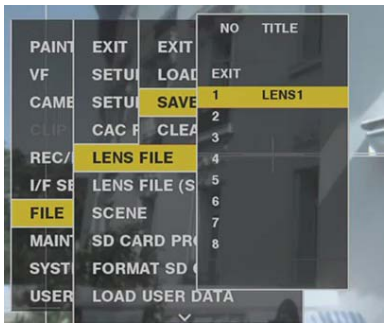
8 **Fine-adjust the lens aperture so that the signal level of Gch becomes the same as the signal level obtained in step 6.**

9 **Set [ON] in the main menu → [MAINTENANCE] → [LENS FILE ADJ] → [LENS FILE ADJ MODE].**

10 **Adjust so that the signal level of Rch becomes the same as Gch in the main menu → [MAINTENANCE] → [LENS FILE ADJ] → [LENS R GAIN OFFSET].**

11 **Likewise, adjust [LENS B GAIN OFFSET] so that the signal level of Bch becomes the same as Gch.**

Writing lens files to internal memory



1 **Select [SAVE] in the main menu → [FILE] → [LENS FILE], and press the jog dial button (or <SET> button).**

The list of lens files currently saved in camera memory is displayed.

2 **Select the file to write from the list.**

The title entry screen and keyboard are displayed.

3 **Enter the desired characters with the keyboard.**

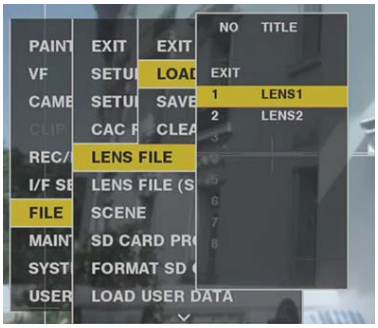
4 **Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).**

The confirmation screen is displayed.

5 **Select [YES], and press the jog dial button (or <SET> button).**

The file is saved and the file list is updated.

Reading lens files from internal memory



1 **Select [LOAD] in the main menu → [FILE] → [LENS FILE], and press the jog dial button (or <SET> button).**

The list of lens files currently saved in camera memory is displayed.

2 **Select the file name to read, and press the jog dial button (or <SET> button).**

The confirmation screen is displayed.

3 **Select [YES], and press the jog dial button (or <SET> button).**

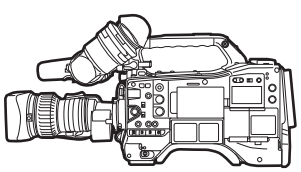
Loading of the file begins.

4 **When the completion message is displayed, press the jog dial button (or <SET> button).**

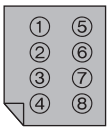
Writing and reading lens files to and from SD memory card

Eight lens files stored to internal memory on the camera can be written to SD memory card as a card file with a single title. Eight titles can be written to SD memory card. Lens files written to SD memory card can be read to internal memory as a written title (containing eight lens files).

The following shows the relationship between lens files stored to internal memory and lens files written to SD memory card.



Internal memory



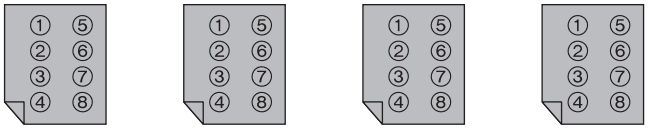
8 lens files

Up to eight lens files can be stored in internal memory.

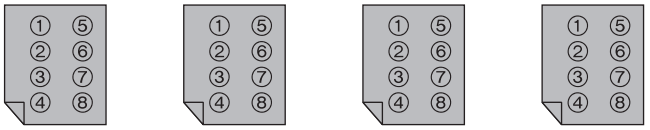
The contents of the eight lens files can be written to and read from SD memory cards as a card file with a single title.

Card file

Title 1 **Title 2** **Title 3** **Title 4**



Title 5 **Title 6** **Title 7** **Title 8**



Eight lens files×8 = 64 lens files can be written.

Writing lens files to SD memory card

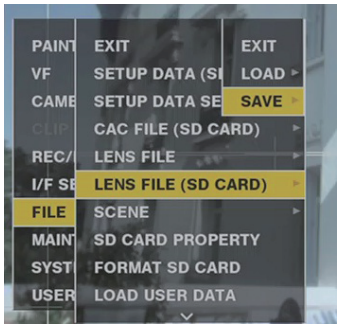


Fig. 1

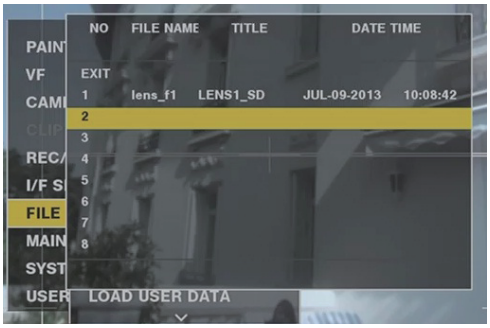


Fig. 2

1 Select [SAVE] in the main menu → [FILE] → [LENS FILE (SD CARD)], and press the jog dial button (or <SET> button). (Fig. 1)

The list of lens files currently saved in camera memory is displayed.

2 Select the file to write from the file list. (Fig. 2)

The title entry screen and keyboard are displayed.

3 Enter the desired characters with the keyboard.

4 Use the jog dial button (or cursor buttons △/▽/◁/▷) to select [OK], and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

5 Select [YES], and press the jog dial button (or <SET> button).

The file is saved and the file list is updated.

For details on error messages if an error message is displayed, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

Reading lens files from SD memory card

1 Select [LOAD] in the main menu → [FILE] → [LENS FILE (SD CARD)], and press the jog dial button (or <SET> button).

The list of lens files currently saved in camera memory is displayed.

2 Select the file name to read, and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

3 Select [YES], and press the jog dial button (or <SET> button).

Loading of the file begins.

4 When the completion message is displayed, press the jog dial button (or <SET> button).

For details on error messages if an error message is displayed, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

NOTE

- Titles of card files on SD memory cards are displayed on the [LENS FILE (SD CARD)] screen. However, titles of lens files contained inside card files are not displayed on the [LENS FILE (SD CARD)] screen. Read the files and check on the [LENS FILE] screen, whenever required. At this time, the lens file in internal memory will be rewritten with the lens file that is read. Before reading lens files on SD memory cards, write the lens files in internal memory to SD memory card to make a backup.

CAC file

For details, refer to “Chromatic aberration compensation function (CAC)” (page 99).

Chapter 5 Preparation

Before you use the camera, mount the battery and lens following the procedures in this chapter. The mounting of accessories is also described in this chapter.

Power supply

A battery or an external DC power supply can be used as the power supply.

Using batteries

Connection of the following batteries to the camera has been verified.

■ **Anton/Bauer batteries**

HYTRON140
DIONIC90

■ **IDX batteries**

ENDURA10

■ **PAG batteries**

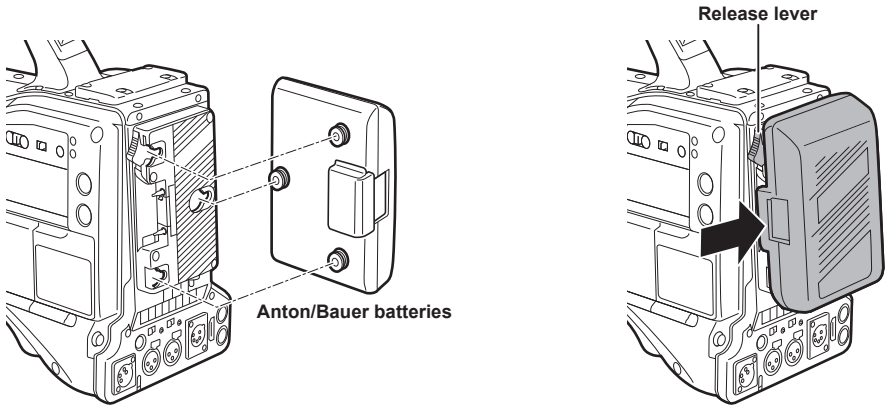
PAG L96e

NOTE

- Other batteries can be supported by changing [BATTERY SELECT] in the main menu → [I/F SETUP] → [BATTERY/P2CARD]. Use of batteries that are already verified as connectable to the camera is recommended.
- Before you use a battery, charge it with a battery charger. (For details on charging, refer to each instruction operation.)
- When using the light (Ultralight 2), using a battery of 90 Wh or more is recommended.
- When using a studio system (AG-BS300, AG-CA300G) to turn the light on, attach the battery plate to the AG-CA300G before attaching the battery. Supply the light power supply from the battery plate. When supplying the light power supply from the light output terminal on the camera, overcurrent when the light is turned on sometimes prevents the camera from starting because of the overcurrent protection of AG-BS300 and AG-CA300G.

Mounting and setting battery

Using Anton/Bauer batteries



1 Mount the Anton/Bauer battery.

2 Insert the battery terminal and slide in the direction of the arrow.

3 Set the battery type.

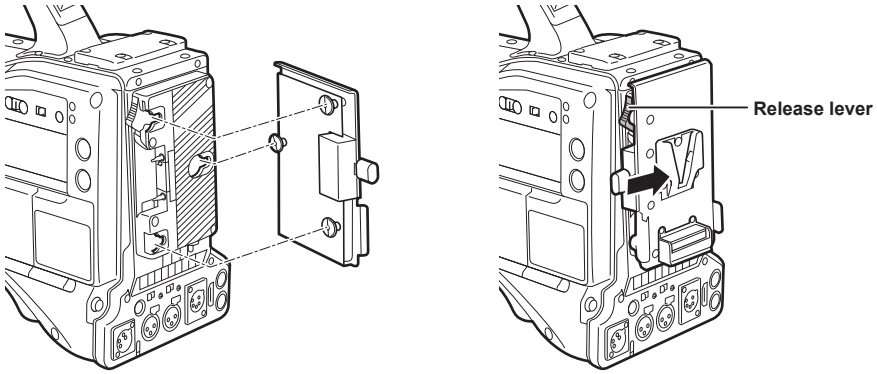
Select the battery in the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT].
For details, refer to “Setting menu basic operations” (page 134).

NOTE

- To remove the battery, keep the release lever of the battery holder completely down, slide the battery in the opposite direction of when you mounted it.

Using V-mount type batteries

Mount the V-mount type battery plate. As shown in the figure, insert and slide in the direction of the arrow.



1 Mount the V-mount type battery plate.

2 Slide in the direction of the arrow.

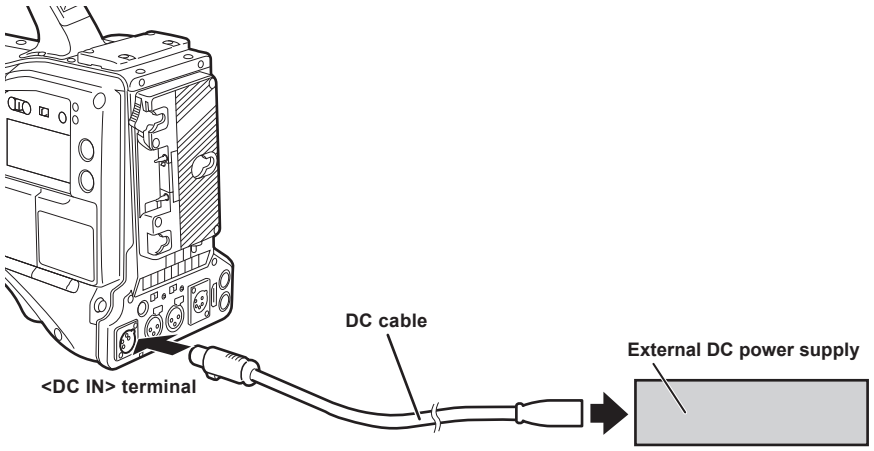
3 Set the battery type.

- Select the battery type in the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT].

NOTE

- Contact your dealer for information about the V-mount type battery plate.
- When the V-mount type battery plate is used, % (percent) is not displayed even if batteries with a battery level indicator function are used.
- When removing the plate, remove by sliding the release lever.
- When using a battery that is not in the [BATTERY SELECT] item, set [TYPE A], [TYPE B] or [TYPE C], and set each item according to the characteristics of the battery.
  For details, refer to [BATTERY/P2CARD] (page 163) and [BATTERY SETTING] (page 163).

Using external DC power supply



1 Connect the external DC power supply to the <DC IN> terminal of the camera.

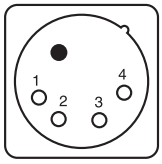
2 Turn on the external DC power supply switch (if there is an external DC power supply switch).

3 Turn the <POWER> switch of the camera <ON>.

■ External DC power supply

Connect after making sure that the output voltage of the external DC power supply is compatible with the rated voltage of the camera.
Select an output amperage for the external DC power supply with a margin above the total amperage of the connected devices.
The total amperage of connected devices can be calculated with the following formula.
Total power consumption ÷ Voltage
When the power of the camera is turned on, inrush current is generated. Insufficient power supply when turning on the power may cause a malfunction. We recommend using an external DC power supply that can assure double the capacity of the total power consumption of the camera and connected devices that are turned on by interlock when the power of the camera is turned on (such as lenses, wireless microphone receivers). For the DC cable, use a dual-core shielded wire of AWG18 (nominal cross section area 0.824 mm^2) or thicker.

- Make sure of the pin alignment of the DC output terminal of the external DC power supply and the camera <DC IN> terminal, and connect the polarity correctly.
  If the +12 V power supply is connected to the GND terminal in error, it may cause fire or malfunction.

DC IN		
	1	GND
	2	NC
	3	NC
	4	+12 V
	Panasonic Part No.: K1AA104H0038 Manufacturer Parts No.: HA16RX-4P (SW1) (76) (Hirose Electric Co.)	

NOTE

- When both the battery and the external DC power supply are connected, the power supply from the external DC power supply has priority. The battery may be removed while using the external DC power supply.
- When using an external DC power supply, always turn the power switch of the external DC power supply on before turning the <POWER> switch of the camera <ON>. If the operations are performed in reverse, the camera may malfunction because the external DC power supply output voltage rises too slowly.
- When power is supplied from the <DC IN> terminal, the light circuit does not function. The light circuit can be used only when power is supplied from the Anton/Bauer battery plate.
- When connecting the battery to the <DC IN> terminal, set the battery type in the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [EXT DC IN SELECT]. However, in that case, % display is not possible for batteries with a battery level indicator function.

Mounting and adjusting the lens

Mounting the lens

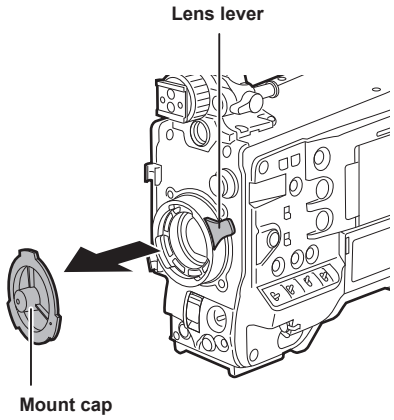


Fig. 1

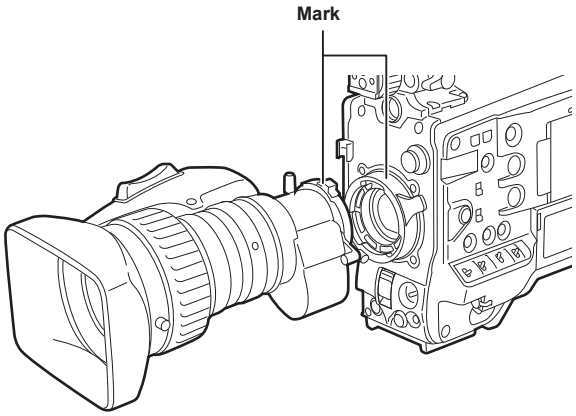


Fig. 2

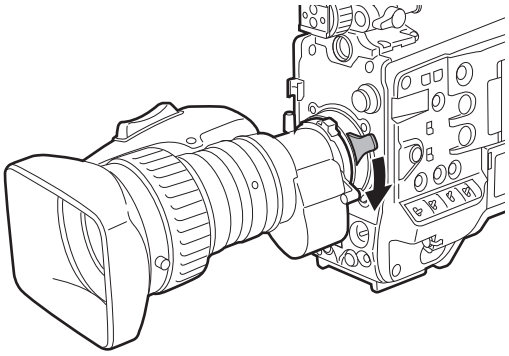


Fig. 3

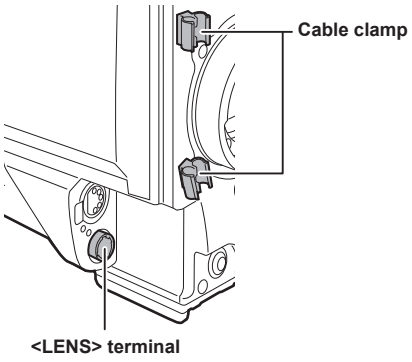


Fig. 4

1 Raise the lens lever and remove the mount cap. (Fig. 1)

2 Align the indentation at the top center of the lens mount with the center mark of the lens to mount the lens. (Fig. 2)

3 Lower the lens lever to firmly clamp the lens. (Fig. 3)

4 Secure the cable through the cable clamp and connect it to the <LENS> terminal. (Fig. 4)

5 Perform lens flange back adjustments.

For details, refer to “Flange back adjustment” (page 97).

NOTE

- For handling the lens, refer to the lens operating instructions.
- For details on the current from the <LENS> terminal, refer to “Details of the connector signals” (page 204).
- When the lens is removed, install the mount cap to protect the device.

Flange back adjustment

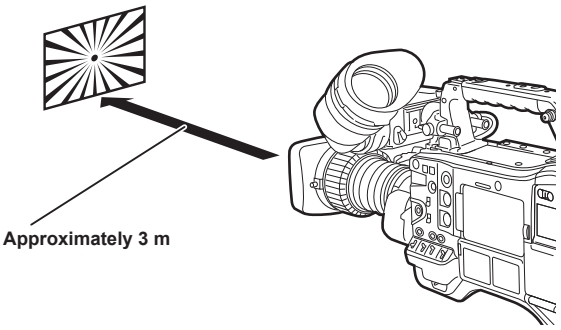
If images are not clearly focused at both telephoto and wide-angle positions during zoom operations, adjust the flange back (distance from the lens mounting surface to the image formation surface).

Once adjusted, the flange back does not need to be readjusted until the lens is changed.

NOTE

- Refer to the lens operating instructions for guidance on adjustment methods and positions of lens parts.

For a normal lens



1 Mount the lens on the camera.

Make sure to connect the lens cable.

2 Set the lens iris to manual, and fully open the iris.

3 Place the flange back adjustment chart approximately 3 m from the lens and adjust the lighting on the chart to obtain an appropriate image output level.

If the image level is too high, use the filters or the shutter.

4 Loosen the F.f (Flange focus) ring clamping screw.

5 Set the zoom ring to the telephoto end position, either manually or by electric drive.

6 Aim the lens at the flange back adjustment chart and turn the distance ring to bring the chart into focus.

7 Set the zoom ring to the wide-angle end position and turn the F.f (Flange focus) ring to bring into focus.

At this time, do not move the distance ring.

8 Repeat steps 5 to 7 until the lens is in focus at both the telephoto and wide-angle positions.

9 Firmly tighten the F.f (Flange focus) ring clamping screw.

NOTE

- F.b (Lens flange back) ring may be indicated on some lenses as the F.f (lens flange focus) ring.

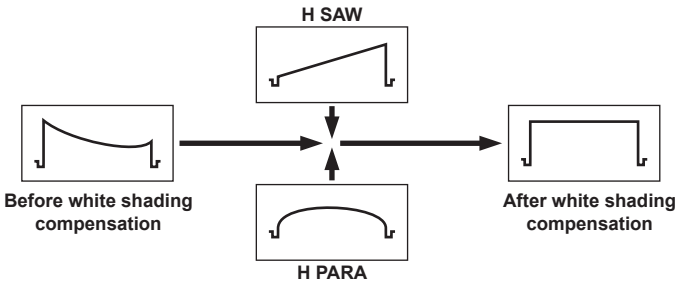
White shading compensation

Adjusting the white shading

This is a method of combining the sawtooth shaped waveform and parabola waveform to compensate to a flatter waveform based on the respective R, G and B waveforms of the video signal.

We recommend adjusting the R, G and B waveforms in the horizontal and vertical directions while monitoring them on the waveform monitor.

Be sure to set [DS.GAIN] and [D.ZOOM] to [OFF] before adjusting white shading.



1 Set the camera for adjustment.

1) Mount the lens on the camera.
   - Make sure to connect the lens cable.
2) Set the <SHUTTER> switch to <OFF>, and the <GAIN> switch to <L> (0 dB).
3) If the lens is equipped with an extender function, release the extender function.
4) Make sure that [HD] is set in the main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL]. Also, make sure that [ZEBRA1 DETECT] is set to [70%], [ZEBRA2 DETECT] is set to [85%], and [ZEBRA2] is set to [SPOT] in the main menu → [VF] → [VF DISPLAY], and then close the menu screen.
   - Change the settings if they are different.
5) Set the <ZEBRA> switch in the viewfinder to <ON>.

2 Set the screen.

1) Shoot a white sheet of paper with no unevenness of color for the whole screen.

2) Set the lens aperture to manual, and adjust it so that the zebra pattern covers the whole viewfinder screen.
   - Make sure that the lens aperture control is between F4 to F11.
   - Adjust the position of the lighting because the zebra pattern will not cover the whole screen if there is any unevenness in the lighting.
   - Make adjustments to avoid several light sources of different color temperature (e.g. fluorescent lights and halogen lamp) from illuminating on the white paper.

3 Adjust the white balance/black balance.

1) Set the <WHITE BAL> switch to <A> or <B>, and use the <AUTO W/B BAL> switch to adjust white balance automatically (AWB).

2) Use the <AUTO W/B BAL> switch to adjust black balance automatically (ABB).

3) Use the <AUTO W/B BAL> switch to adjust white balance automatically (AWB) again.

4 Perform step 2-2) again.

5 Adjust white shading.

1) Adjust from [R H SAW] to [B V PARA] in the main menu → [MAINTENANCE] → [WHITE SHADING] to make a flatter waveform.

6 If the lens is equipped with an extender function, turn on the extender function and repeat steps 2 to 5.

Compensation values are stored on the camera as a single lens file data using two patterns for when the lens is equipped and not equipped with an extender pattern.
Adjustment values are saved in memory, so there is no need to re-adjust white shading even after turning the camera off.

NOTE

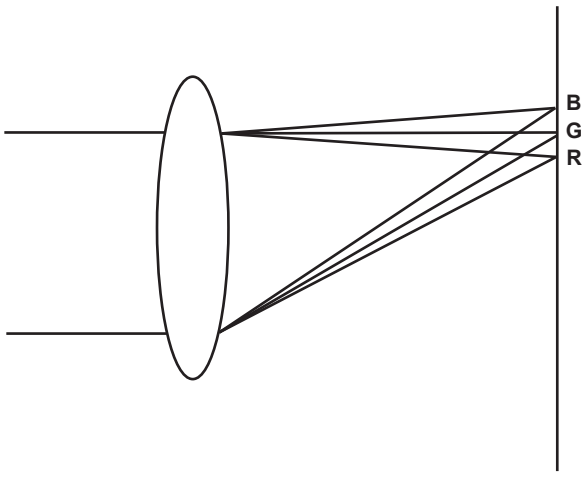
- Coloring may occur in the vertical direction near where the lens aperture is open (OPEN) even when the white shading has been adjusted, but this is something that is inherent to optical systems and is therefore not indicative of a malfunction.
- Since fluorescent lights, mercury lamps, and other such kinds of lighting tend to flicker, use a light source which is less subject to flickering such as sunlight or a halogen lamp.
- Make adjustments to the position of the lighting, etc. also when the lens aperture is not between F4 and F11.
- Make sure to leave the <SHUTTER> switch at <OFF>.

Chromatic aberration compensation function (CAC)

The chromatic aberration compensation function minimizes color smearing in peripheral images. This function automatically compensates for registration error that is caused mainly due to slight chromatic aberration, which is hard to completely compensate with the lens itself, using the camera recorder unit.

When the lens compatible with the chromatic aberration compensation function is mounted, if the camera has the chromatic aberration compensation data of the lens, then the chromatic aberration compensation function is activated automatically.

What is lens chromatic aberration?



“Chromatic aberration” here refers to zoom factor chromatic aberration. Zoom factor chromatic aberration occurs since the diffraction ratio of a lens differs according to red (R)/green (G)/blue (B). Chromatic aberration on the lens itself is compensated for, but still remains in the periphery, in particular. Also, this chromatic aberration occurs on zoom lens due to a complex relationship between zoom ratio, aperture and focal distance. In image terms, this is registration error.

Chromatic aberration compensation function

To compensate chromatic aberration, store the chromatic aberration characteristics of the lens regarding zoom ratio, aperture and focal distance to the camera recorder beforehand. Connect a lens that matches those chromatic aberration characteristics, and perform compensation matched to the zoom ratio, aperture and focal distance of that lens.

The following four types of chromatic aberration compensation function data for lenses are stored to memory before the camera is shipped.

Indicated Compatible Lens Part No. on Camera	Indicated Compatible Lens Part No. on Camera
HA16X 6.3BERM-M58	HA16x 6.3BERM-M58
HA22X 7.8BERM-M58	HA22x 7.8BERM-M58
HJ17EX 7.6B IASE	HJ17ex 7.6B IASE
HJ22EX 7.6B IASE	HJ22ex 7.6B IASE

NOTE

- For details on additions and modifications to lenses compatible with the chromatic aberration compensation function, visit the support desk at the following website:
  http://pro-av.panasonic.net/

Operation of chromatic aberration compensation function

Operate by the following procedure when lens data is already stored on the camera.

1 Mount the lens on the camera, and connect the lens connector to the camera.

2 Set [ON] in the main menu → [MAINTENANCE] → [CAC ADJ] → [CAC CONTROL].

If the lens model number stored on the camera matches the model number of the connected lens match, the chromatic aberration data stored on the camera will automatically be read.

Viewing the operation status of chromatic aberration compensation function

1 Push the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side with the menu not displayed in the viewfinder screen.

If the letters [CAC] are displayed at the top right of the viewfinder screen, the chromatic aberration compensation function is in operation.
If the letters [CAC] are not displayed, the chromatic aberration compensation function is not in operation.

2 Set [ON] in the main menu → [VF] → [VF INDICATOR] → [CAC].

The letters [CAC] are displayed at the top right of the viewfinder screen.
[ON] is set in the factory settings.

Loading the chromatic aberration compensation file from the SD memory card

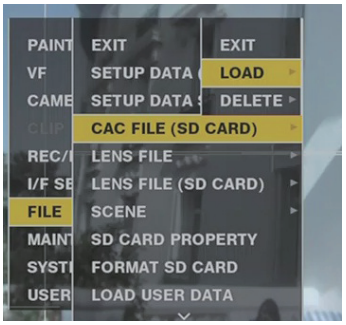


Fig. 1

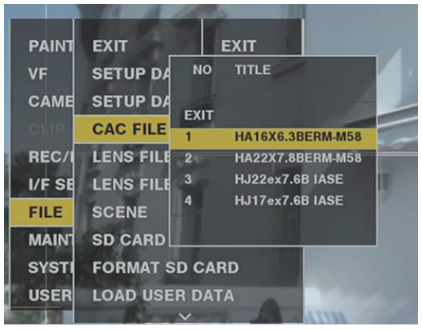


Fig. 2

1 Insert the SD memory card written with the chromatic aberration compensation data you downloaded from out website into the camera.

For details on downloading, refer to the following website.
http://pro-av.panasonic.net/

2 Select [LOAD] from the main menu → [FILE] → [CAC FILE (SD CARD)]. (Fig. 1)

The list of CAC files on the SD memory card is displayed.

3 Select the file number to load, and press the jog dial button (or <SET> button). (Fig. 2)

The confirmation screen is displayed.

4 Select [YES], and press the jog dial button (or <SET> button).

The list of CAC files saved in camera memory is displayed.

5 Select the file number to save, and press the jog dial button (or <SET> button).

The confirmation screen is displayed.

6 Select [YES], and press the jog dial button (or <SET> button).

The CAC files are loaded to camera memory.

7 To store two or more chromatic aberration compensation data to the camera, repeat steps 2 to 6.

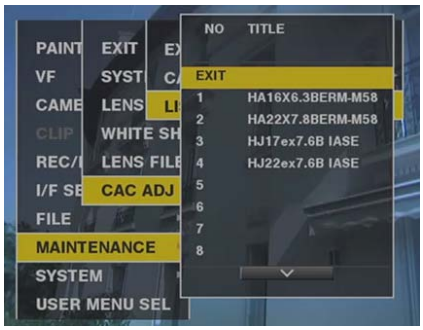
8 To end menu operations, press the <MENU> button.

The setting menu disappears, and the camera status display is returned to.

NOTE

- Up to 32 files can be loaded to the camera.
  To load a new file, delete any file before loading the new file.
  For details, refer to “Deleting the chromatic aberration compensation file from the camera” (page 101).

Deleting the chromatic aberration compensation file from the camera



1 Set [OFF] in the main menu → [MAINTENANCE] → [CAC ADJ] → [CAC CONTROL].

2 At [LIST/DELETE], use the jog dial button (or <SET> button) to select the lens model number to delete.

The confirmation screen is displayed.

3 Select [YES], and press the jog dial button (or <SET> button).

The file is deleted.

When the chromatic aberration compensation data is not functioning properly

When the chromatic aberration compensation function is not functioning properly, or when the chromatic aberration compensation data could not be loaded normally, the viewfinder displays an error message.

Error message	Meaning	Remedy
[CAC FILE DATA NOT FOUND]	There is no chromatic aberration compensation data matching the connected lens when the chromatic aberration compensation function is [ON]. This is displayed when the camera is turned on.	Load chromatic aberration compensation data matching the connected lens to the camera.
[CAC LENS DATA INVALID]	The response data from the lens is not supported, or the response contains information other than that defined in the chromatic aberration compensation data.	The lens is not a lens compatible with the chromatic aberration compensation function. The chromatic aberration compensation will not function, but will not cause any problems in use.
[LENS INIT. NOT COMPLETED]	Position detection (focus zoom) of the lens is encoder type, and initialization is not completed.	Turn the focus/zoom ring to pass through the center of the operating range.

NOTE

- When mounting lens optical system accessories (converter lens attachments), the chromatic aberration compensation function sometimes does not function properly since the optical characteristics of the lens change. In this case, set the chromatic aberration compensation function to [OFF].
- When a focus servo is used on CANON lenses, enable recording after initialization is completed in the automatic initialization mode. Data is sometimes recording while the focus ring is moving.
- When an error message is also not displayed while the chromatic aberration compensation function is not functioning, the software version of the lens might be old. Contact the manufacturer of the lens you are using.

Preparing for audio input

Prepare the camera for connecting audio input devices.

Using the front microphone

Microphones such as the stereo microphone kit AJ-MC900G (optional) can be mounted.

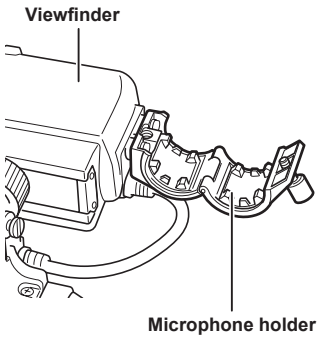


Fig. 1

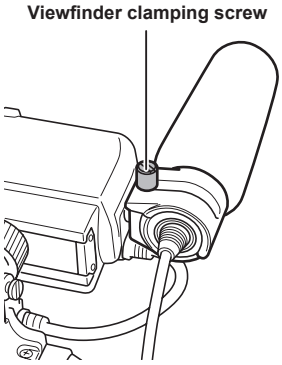


Fig. 2

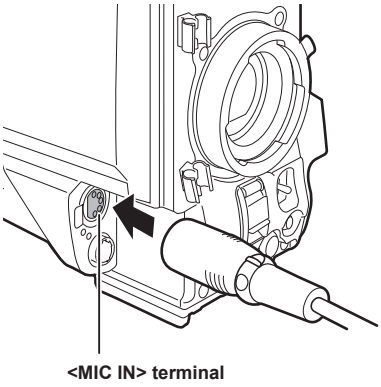


Fig. 3

1 Open the microphone holder. (Fig. 1)

2 Mount the microphone and tighten the viewfinder clamping screw. (Fig. 2)

Mount with the UP indication on the microphone facing up.

3 Connect the microphone cable to the <MIC IN> terminal on the camera. (Fig. 3)

4 According to the audio channel to be recorded, switch the <AUDIO IN> switch to <FRONT>.

Using a wireless microphone receiver

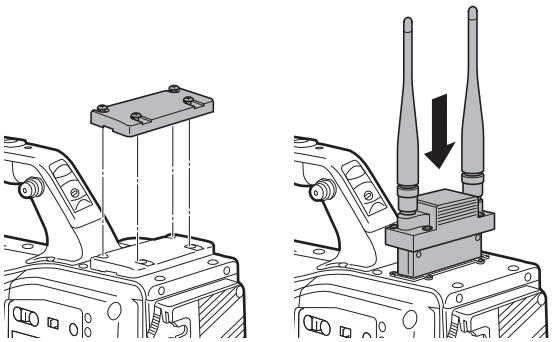


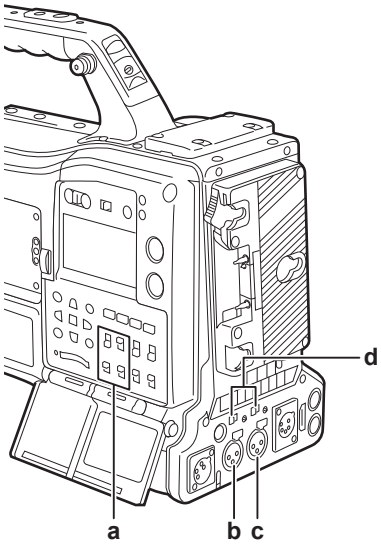
Fig. 1

1 Remove the cover to insert the wireless microphone receiver and secure it with the screws. (Fig. 1)

2 According to the audio channel to be recorded, switch the <AUDIO IN> switch to <W.L.>.

3 When using a two-channel wireless microphone receiver, set [DUAL] in the main menu → [I/F SETUP] → [MIC/AUDIO] → [WIRELESS TYPE].

Using audio devices



a: <AUDIO IN> switch

b: <AUDIO IN CH1/3> terminal

c: <AUDIO IN CH2/4> terminal

d: <LINE>/<MIC> selector switch

1 Connect the audio equipment to the <AUDIO IN CH1/3> or <AUDIO IN CH2/4> terminal of the camera with the XLR cable.

2 According to the channel to which the XLR cable is connected, switch the <AUDIO IN> switch to <REAR>.

3 Set the <LINE>/<MIC> selector switch on the rear panel to <LINE>.

Mounting accessories

Mounting the camera on a tripod

When mounting the camera on a tripod, use the optional tripod adaptor (SHAN-TM700).

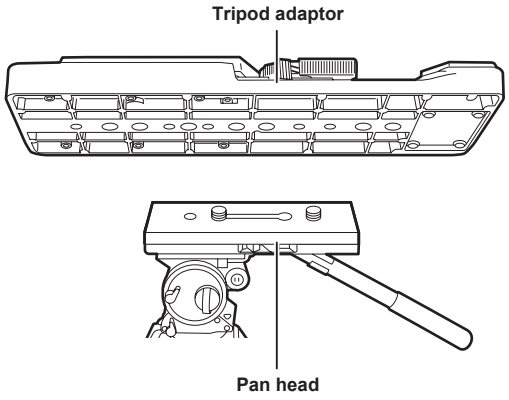


Fig. 1

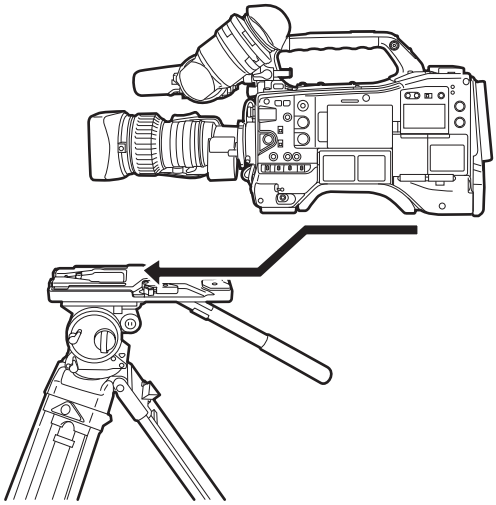


Fig. 2

1 Mount the tripod adaptor on the tripod. (Fig. 1)

2 Mount the camera on the tripod adaptor. (Fig. 2)

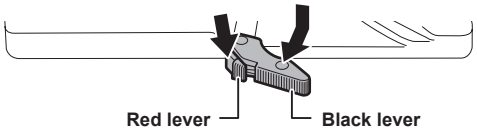
Slide the camera forward along the grooves until you hear a click.

NOTE

- Select an appropriate hole in the adaptor, taking into account the center of gravity of the camera and tripod adaptor combined. Also, make sure that the diameter of the selected hole matches the diameter of the pan head screw.

Removing the camera from the tripod adaptor

While holding the red lever down, move the black lever in the direction of the arrow, and slide the camera backward to remove it.



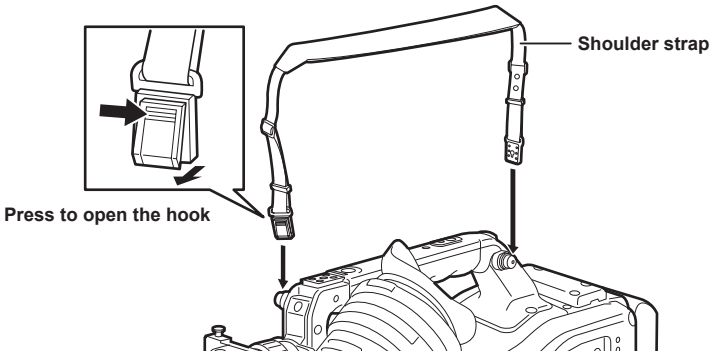
NOTE

- If the tripod adaptor pin does not return to its original position after the camera has been removed, hold the red lever down and move the black lever in the direction of the arrow again, in order to return the pin to its original position. Note that the camera cannot be mounted if the pin remains in the center.

Attaching the shoulder strap

Attach the shoulder strap to the shoulder strap fittings.

To detach the shoulder strap, first open the hooks, then detach the strap.

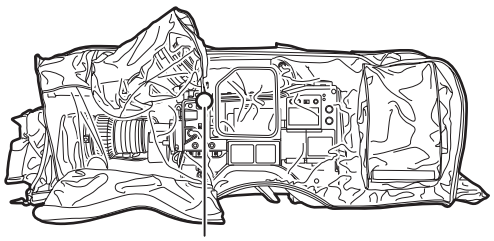


NOTE

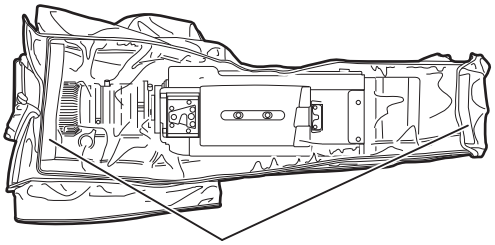
- Make sure that the shoulder strap is securely attached.

Attaching the rain cover

The figure below shows an example of use of the rain cover SHAN-RC700.



Tighten the cord



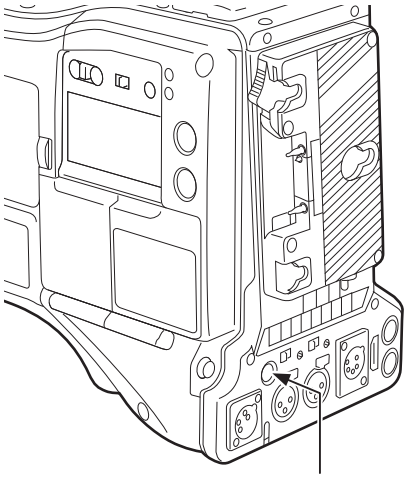
Secure with the surface fastener

Connecting the <DC OUT> terminal with the external recording start/stop switch

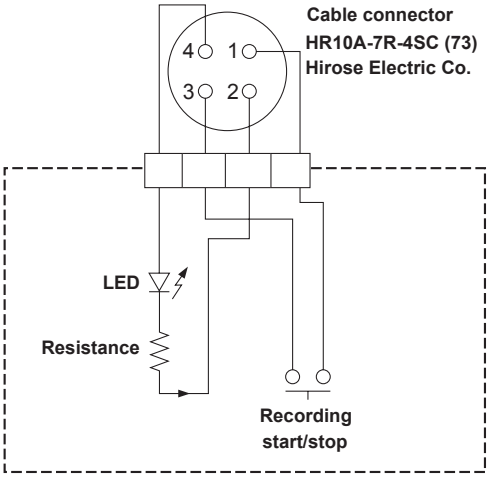
It is possible to retrieve 1.5 A current from the <DC OUT> terminal of the camera.

Recording start/stop can be controlled by connecting an external switch to this terminal.

An LED connected to this terminal can also be used as a tally lamp. This is useful for shooting video when fixing the camera on a crane.



(Connection example)



1 GND

2 TALLY OUT

Open collector output on the camera side

Tally lamp on	Low impedance
Tally lamp off	High impedance

3 Recording start/stop switch

This is connected in parallel to the <REC> button on the camera or the VTR button on the lens.

4 +12 V

NOTE

- Make sure that polarity is correct before connecting an external device. Failure to do so may result in a malfunction.

Chapter 6 Thumbnail Operations for Clips

The images and voices created from one shooting session, together with additional information such as text memos and metadata are saved as clips. You can play back and edit clips with the camera.

Thumbnail operations

Thumbnail operation overview

A clip is a data group that includes the images and voices created from one shooting session, together with additional information such as text memos and metadata.

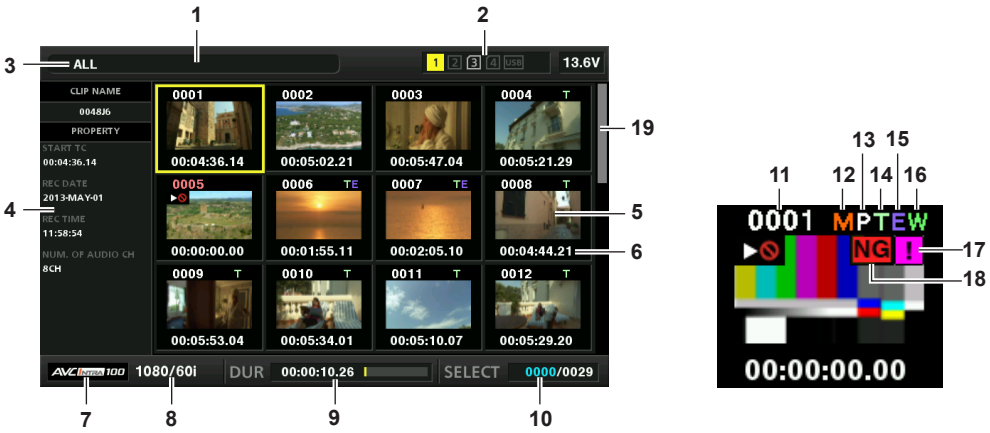
The following operations can be performed while viewing the clip thumbnails displayed on the LCD monitor.

- Play back, delete, copy, or restore clips.
- Adding or deleting a shot mark and text memo to the clip
- Copying part of a clip using the text memo
- Changing the thumbnail image using the text memo
- Format P2 cards and SD memory cards.
- Upload and edit clip metadata from the SD memory card.

Thumbnail screen

Press the <THUMBNAIL> button to display the thumbnail screen on the LCD monitor. Press the <THUMBNAIL> button again to return to the regular display. Also, when changing from the regular display to the thumbnail screen display, all clips will be displayed on the thumbnail screen.

Press the <MENU> button on the thumbnail screen to enable thumbnail menu operations.



1 Status message

A message showing the process status is displayed. [UPDATING] and the icon [ ] are displayed while the screen is being refreshed.

2 Card slot, storage device, and LAN status display

The status of the P2 card, storage device, and LAN (scheduled update) connection status are displayed as follows:

[4] (White)	The card slot number in which the P2 card is inserted is displayed in white.
[3] (Yellow)	The card slot number of the P2 card in which the clip in the cursor position is saved is displayed in yellow. If the clips are recorded across multiple P2 cards, all slot numbers of those cards that contain the clips are displayed. ***NOTE*** The frame turns red if the inserted P2 card is in any of the following conditions: • [RUNDOWN CARD] The maximum number of overwrites on the P2 card has been exceeded. • [DIR ENTRY NG CARD] The directory structure on the P2 card is not supported. • [AUTH NG CARD] Indicates that the card is a microP2 memory card which cannot authenticate a CPS password.
[USB] (Gray)	Displayed in gray when a storage device is not connected.
[USB] (White)	Displayed in white when a storage device can be used.
[USB] (Yellow)	Displayed in yellow when the thumbnails of clips in the storage device are displayed.
[USB] (Red)	Displayed in red when a storage device is connected but cannot be used.

3 Display mode

Displays the types of the thumbnails to be displayed on the screen and the types of other information screens. To switch between displays, refer to “Thumbnail screen display settings” (page 111).

[ALL]	Displays all clips.
[SAME FORMAT]	Displays clips in the same format as the system format.
[SELECT]	Displays clips selected with the <SET> button.
[MARKER]	Displays clips with shot marks.
[TEXT MEMO]	Displays clips with text memo data.
[SLOT n]	Displays clips in the specified P2 card. (n: indicates slot number 1 to 2.)
[P2/REMAIN]	Displays media information (remaining capacity).
[P2/USED]	Displays media information (used capacity).

[META DATA]	Displays the set metadata.

4 Simple properties display
This displays the various properties of the clip on which the pointer is positioned. You can select the items to display from the menu. For details, refer to “Properties” (page 119).

NOTE

- If the maximum number of characters is exceeded, it will only display the maximum number of characters that can be displayed.

5 Thumbnail
Displays the thumbnail recorded in each clip. This thumbnail can be changed using the [EXCH. THUMBNAIL] function.
For details, refer to “Thumbnail screen display settings” (page 111).

6 Clip information display
Displays any one of the time code [TC] at the start of clip recording/user bits [UB] at the start of clip recording/shooting time [TIME]/shooting date [DATE]/shooting date and time [DATE TIME]/clip name [CLIP NAME]/user clip name [USER CLIP NAME]/card slot number [SLOT]/time cord of the thumbnail [THUMBNAIL TC] according to the setting.

7 Recording mode
Displays the recording mode for the clip on which the cursor is positioned.

8 System format
Displays the format for the clip on which the cursor is positioned.

9 Duration
Displays the clip length (duration) at the cursor position and the current rough playback position against the clip length.
The playback position display is enabled when [RESUME] is selected in the main menu → [CLIP] → [THUMBNAIL SETUP] → [PB POSITION].
The approximate playback position is displayed when the playback start position is not at the beginning.

10 Number of selected clips
Shows the number of selected clips and the total number of clips.

11 Clip number
The number assigned to the clip on the P2 card is displayed, normally in the order from the earliest recording date and time. The clip numbers of clips that cannot be played are shown in red, and the unplayable indicator [▶⃠] is also displayed.
For details, refer to “Thumbnail screen display settings” (page 111).

12 [M] Shot mark indicator
Displayed for the clip of a thumbnail with a shot mark attached.
For details, refer to “Shot mark recording function” (page 39).

13 [P] Indicator for clips with proxy
Displayed for clips with proxy attached.

14 [T] Text memo indicator
Displayed for clips with text memo data attached.

15 [E] Edit copied clip indicator
Displayed for the edit copied clip.

16 [W] Wide clip indicator
Displayed for clips recorded with the 16:9 aspect ratio. However, it does not accompany clips in HD format.

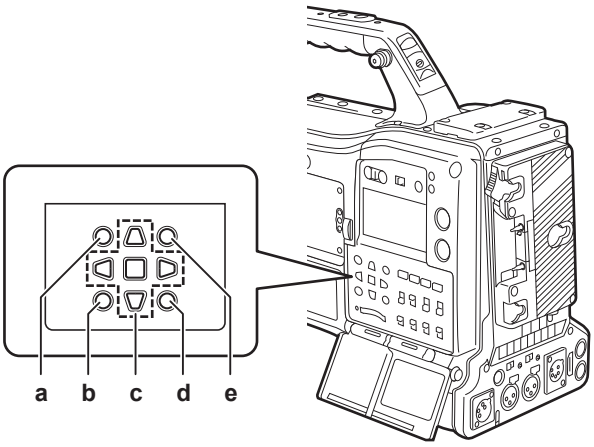
17 [!] Incomplete clip indicator
This is displayed when clips are saved across multiple P2 cards and either of the P2 cards is not inserted in a card slot.

18 [NG] Defective clip indicator/[NG] Unknown clip indicator
This is displayed for defective clips, which may result from various causes such as turning off the power during recording.
Clips with yellow defective clip indicators can sometimes be restored.
For details, refer to “Restoring clips” (page 115).
Clips with red defective clip indicators cannot be restored and must be deleted. If the clip cannot be deleted, format the P2 card.
[NG] is displayed for clips which differ in format from the P2 standard.

19 Thumbnail scroll bar
Indicates which part of the whole thumbnail is currently being viewed.

Selecting thumbnails

Multiple thumbnails can be randomly selected on the thumbnail screen.



a: <THUMBNAIL> button

b: <EXIT> button

c: ▲►▼◄ cursor buttons
■<SET> button

d: <MENU> button

e: <SHIFT> button

Selecting clips

You can select multiple clips randomly.

1 Use the cursor buttons to move the cursor over the desired clip.

2 Press the <SET> button.

A light blue frame and [☑] are displayed on the clip where the cursor is put. This indicates that it is selected.

3 To select additional clips, repeat steps 1 to 2.

It is possible to display only the selected clips on the thumbnail screen for playback.

NOTE

- While holding down the <SHIFT> button, use the cursor buttons (△/▽) to move the cursor to the first or last clip.
- After selecting a clip, move the cursor to another clip and press the <SHIFT> button + <SET> button to select all clips from the previously selected clip to the cursor position.
- As clips are selected, the number of selected clips displayed on the lower right corner of the screen changes according to the selection.

Deselecting clips

1 Move the cursor to the selected clip and press the <SET> button.

This deselects the clip.

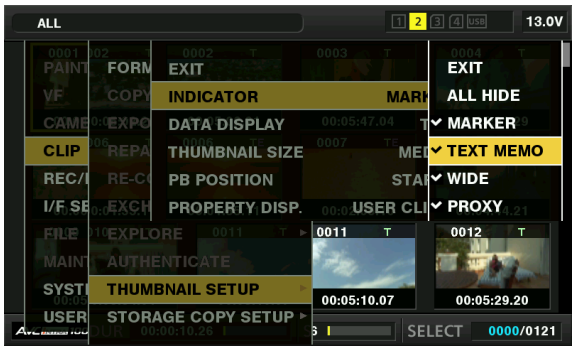
NOTE

- While holding down the <SHIFT> button, press the <EXIT> button to deselect all the clips at once.

Thumbnail screen display settings

You can customize the thumbnail screen according to usage.

Setting example for thumbnail screen ([INDICATOR])



1 Select [THUMBNAIL SETUP] in the main menu → [CLIP].

The thumbnail setting items ([INDICATOR], [DATA DISPLAY], [THUMBNAIL SIZE], [PB POSITION], [PROPERTY DISP.]) are displayed. For details, refer to “[THUMBNAIL SETUP]” (page 153).

Setting thumbnails to be displayed

1 Select [REPOSITION] in the main menu → [CLIP].

2 Move the cursor to the type of the clip you want to display using the cursor buttons.

3 Press the <SET> button.

Thumbnail size settings

You can customize the thumbnail size.

1 Select [THUMBNAIL SIZE] in the main menu → [CLIP] → [THUMBNAIL SETUP].

2 Move the cursor to the type of the clip you want to display using the cursor buttons.

3 Press the <SET> button.

Setting the clip information display

You can customize the clip information display contents according to your preference.

1 Select [DATA DISPLAY] in the main menu → [CLIP] → [THUMBNAIL SETUP].

2 Place the cursor on the item you want to set using the cursor buttons.

3 Press the <SET> button.

Setting items that display properties

You can set simple properties item displayed on the left of the thumbnail.

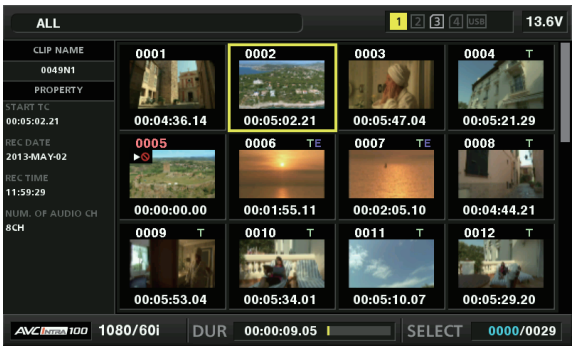


Fig. 1

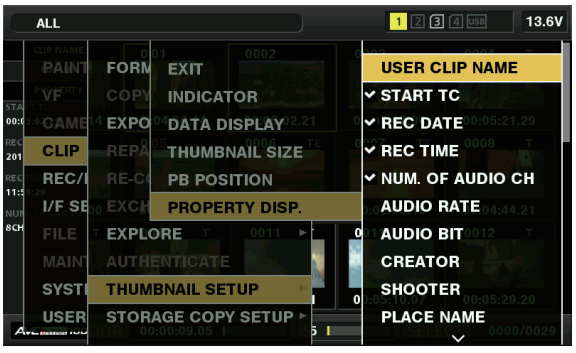


Fig. 2

1 Open the thumbnail screen. (Fig. 1)

2 Select [PROPERTY DISP.] in the main menu → [CLIP] → [THUMBNAIL SETUP].

3 Press the <SET> button to enter into the item menu. (Fig. 2)

The selected item has a check mark on it.

4 Press the <SET> button.

Pressing the <SET> button will check unchecked items, and at the same time, uncheck items that are already checked.

NOTE

- Property items can be displayed by selecting [SMALL] in the main menu → [CLIP] → [THUMBNAIL SETUP] → [THUMBNAIL SIZE].
- A maximum of 6 items can be displayed at the same time.
- When 6 items are already selected, all unchecked items cannot be selected. You can change your item selection by unchecking selected items.

Playing back clips

1 Press the <THUMBNAIL> button.

The thumbnail screen appears on the viewfinder screen.

2 Use the cursor buttons to move the cursor over the clip to be played back.

3 Press the <PLAY/PAUSE> button.

- Playback starts from the beginning of the clip indicated by the cursor.
- After playback of the clip indicated by the cursor ends, the clips will be played back in the order displayed on the thumbnail screen. The screen returns to the thumbnail screen when playback of the last clip ends.
- By changing the thumbnail display settings, you can set it to play clips on a specified slot or clips with an inserted text memo only.
- To change the playback order of the clips, select the clips in the order to be played back. Select [SELECTED CLIPS] in the main menu → [CLIP] → [REPOSITION] to display the clips in the selected order.
- During playback of clips, press the <◀◀/REW> button to start 4x speed reverse playback, and the <FF/▶▶> button to start 4x speed fast playback. Press the <PLAY/PAUSE> button to return to normal playback.
- During playback of clips, press the <PLAY/PAUSE> button to pause the playback.

  During a pause, press the <◀◀/REW> button to pause the playback at the beginning of the clip. Press the <◀◀/REW> button again to pause the playback at the beginning of the previous clip.

  During a pause, press the <FF/▶▶> button to pause the playback at the beginning of the next clip.
- Pressing the <STOP> button during clip playback stops the playback and returns the display to the thumbnail screen.

NOTE

- When playing clips, it is not necessary to select the clips (blue frames around the thumbnails).
- Clips with clip numbers displayed in red cannot be played back. These are the clips in different video formats (such as 1080i, 480i).
- When playback is stopped, the cursor moves to the position of the clip that was being played back, regardless of where the playback started.
- Press the <PLAY/PAUSE> button again to start playback from the beginning of the clip under the cursor. To continue to play back from where previously stopped, select [RESUME] in the main menu → [CLIP] → [THUMBNAIL SETUP] → [PB POSITION].
- Playing different compressed recording formats may cause audio and video distortions in between clips.
- Continuously playing clips of the same format but of different audio bit rates mutes the audio in between clips.
- You can play back clips from the text memo position by switching the thumbnail screen to the text memo display. (page 114)
- When playing back clips from a thumbnail, you can set the playback start position in the main menu → [CLIP] → [THUMBNAIL SETUP] → [PB POSITION].

Changing thumbnails

Replace thumbnails with images that include previously attached text memos while images are recorded or played back.

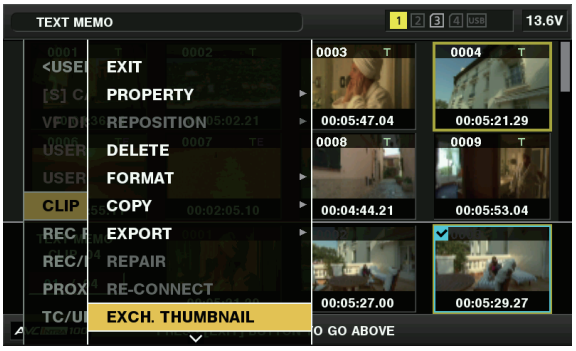


Fig. 1

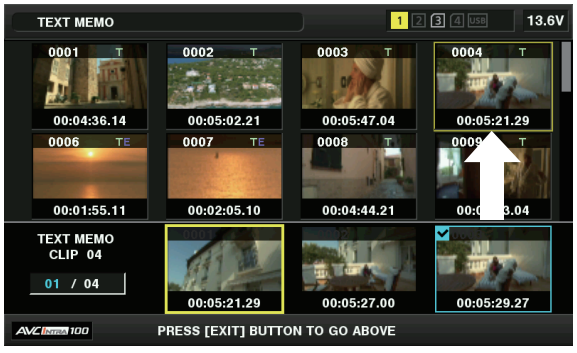


Fig. 2

1 Add text memos to images to be changed.

For details on adding text memos, refer to “Text memo recording function” (page 40).

2 Select [TEXT MEMO CLIPS] in the main menu → [CLIP] → [REPOSITION] to display thumbnails of the clips with text memos.

3 Move the cursor over the clip where you want to change the thumbnail and press the <SET> button, and then move the cursor to the text memo display on the lower row.

4 Select thumbnail to be replaced from the text memos, place the cursor on it, and select [EXCH. THUMBNAIL] in the main menu → [CLIP]. (Fig. 1)

5 Press the <SET> button to display the confirmation screen, and use the cursor buttons and the <SET> button to select [YES]. (Fig. 2)

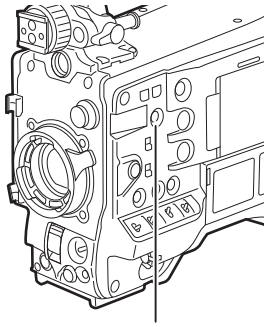
The menu closes and the thumbnail for the clip is replaced.

NOTE

- You can view the thumbnail position (number of frames from the top of the clip) from the [THUMBNAIL] item of the clip information display. Since thumbnails usually come from the top of the clip, 0 is displayed.
- Even if you change the thumbnail, playback from the thumbnail screen will still start from the beginning of the clip.
- The thumbnail image with the [!] mark may be displayed for clips of a format with a different number of lines and frequencies when displaying a text memo clip without displaying the thumbnail of the text memo position displayed at the bottom section.

Shot mark

Shot marks can be added to a clip thumbnail to distinguish the clip from others.



<SHOT MARKER> button

1 Use the cursor buttons to move the cursor over the clip to which you want to add a shot mark.

2 Press the <SHOT MARKER> button.

- A shot mark is added to the thumbnail of the clip at the cursor position.
- To delete a shot mark, place the cursor again and press the <SHOT MARKER> button.

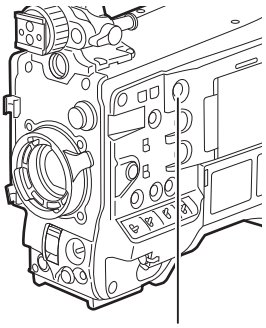
NOTE

- You can attach a shot mark during recording.
- Add shot marks after recording stops to attach the shot mark to the most recently recorded clip.
  For details, refer to “Shot mark recording function” (page 39).
- When adding a shot mark to or deleting the shot mark from a clip recorded across multiple P2 cards, do this with all these P2 cards inserted into card slots.
- [SHOT MARK] is assigned to the <SHOT MARKER> button in the factory setting. It can also be assigned to the <RET> button in the main menu → [CAMERA] → [SW MODE].

Text memo

You can add text memos during recording or playback. Text memos can be used to play clips at some point or break clips into chunks and copy the necessary portions.

Adding a text memo



<TEXT MEMO> button

1 Press the <TEXT MEMO> button while recording, playing, or displaying thumbnails.

- Pressing this button while recording or playing inserts a text memo at the instance when the button was pressed. At that instance, [TEXT MEMO] (when successful) or [TEXT MEMO INVALID] (when unsuccessful) is displayed.
- Pressing this button while the thumbnail screen is displayed inserts a text memo in the clip thumbnail (normally at the beginning) position.

NOTE

- Up to 100 text memos can be recorded to a single clip.
- Playback may stop for a moment when the <TEXT MEMO> button is pressed. This is not a malfunction.
- You cannot record text memos during loop recording.

- [TEXT MEMO] is assigned to the <TEXT MEMO> button in the factory setting. It can also be assigned to the <RET> button in the main menu → [CAMERA] → [SW MODE].

Playing back from the text memo position

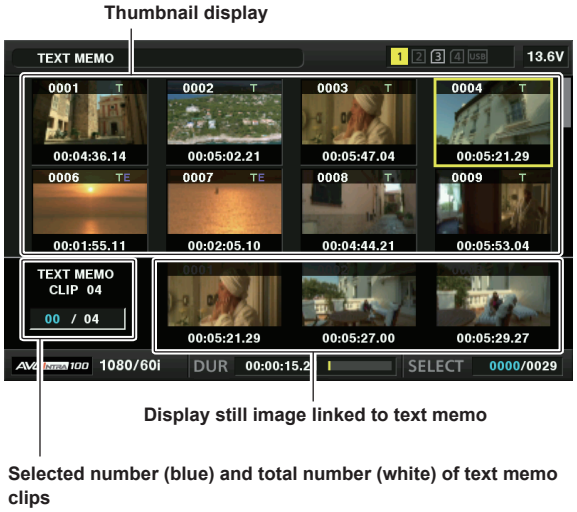


Fig. 1

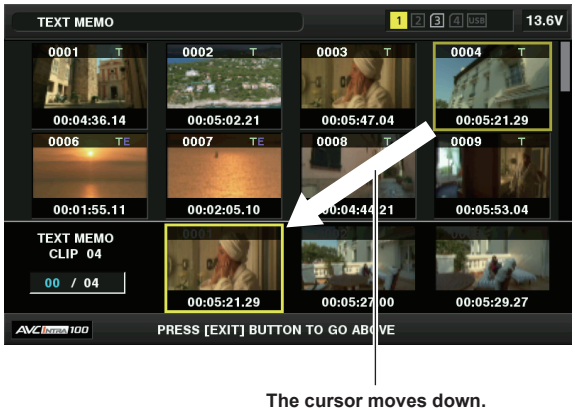


Fig. 2

1 Press the <MENU> button, and select [TEXT MEMO CLIPS] in the main menu → [CLIP] → [REPOSITION].

The thumbnails of the clips with text memos added are displayed in the upper section of the LCD monitor. The lower section of the LCD monitor shows information on the text memo on the clip selected by the cursor. (Fig. 1)

2 Move the cursor over the clip that contains the text memo to be played back and press the <SET> button.

The cursor moves to the lower section of the LCD monitor. (Fig. 2)

3 With the cursor located in the lower section, use the cursor buttons (◁/▷) to move the cursor to the text memo number to be played back, and then press the <PLAY/PAUSE> button.

- Playback starts from the time code position of the text memo where the cursor is located.
  If the <STOP> button is pressed during playback or the playback has finished at the end of the clip, the thumbnail screen appears again and the cursor returns to the thumbnail of the text memo where the playback started.
- While holding down the <SHIFT> button, use the cursor buttons (△/▽) to move the cursor to the beginning or end of the text memo.
- Press the <EXIT> button to return the cursor to the upper section of the thumbnail screen.

NOTE

- Pressing the <REC> button while the text memo screen is displayed does not start recording.
- For clips in AVC-Intra and AVC-LongG formats with different settings (different system frequency) in the main menu → [SYSTEM] → [SYSTEM MODE], the thumbnail of the text memo position may not be displayed. A thumbnail with the [!] mark may be displayed instead.

Deleting text memos

1 Perform steps 1 to 2 in “Playing back from the text memo position” (page 114) to select the desired text memo in a clip.

2 Move the cursor over the text memo to be deleted and press the <SET> button.

3 Select [DELETE] in the main menu → [CLIP] and press the <SET> button.

4 Use the cursor buttons and the <SET> button to select [YES].

This deletes the text memo.

Using a text memo to divide a clip and copy the necessary portion

1 Perform steps 1 to 2 in “Playing back from the text memo position” (page 114) to select the desired text memo in a clip.

2 Move the cursor over the text memo to be copied and press the <SET> button.

You can select multiple text memos.

3 Select [COPY] in the main menu → [CLIP].

4 Use the cursor buttons and the <SET> button to select the destination slot, and then select [YES].

- Copying starts.
- The portion between the selected text memo and the next one is copied. If no text memo is found after the selected one, then the part after the selected text memo to the end of the clip is copied.
- If multiple text memos are selected, the selected sections are copied.
- While the clip is being copied, the progress of the copy process and cancelation will be displayed. To discontinue the copy process, press the <SET> button. When the [YES]/[NO] confirmation screen is displayed, use the cursor buttons and the <SET> button to select [YES].

NOTE

- In clip division and copying using the text memo, the area copied may be automatically modified and copied depending on the recording method of the clip.

Deleting clips

1 Use the cursor buttons to move the cursor over the clip to be deleted, and press the <SET> button to select the clip.

2 Select [DELETE] in the main menu → [CLIP] and press the <SET> button.

3 Use the cursor buttons and the <SET> button to select [YES].

The clip is deleted. All selected clips (in blue-green frames) are deleted by this operation.

NOTE

- To interrupt the deletion process, press the <SHIFT> button + <EXIT> button or the <SET> button to cancel the operation. Once a clip is deleted, it cannot be restored even if the deletion process is aborted.

Restoring clips

You can restore clips that were made defective as a result of sudden power-down during recording or removal of the P2 card being accessed.

1 Use the cursor buttons to move the cursor over the clip to be restored (defective clips are indicated by defective clip marks) and press the <SET> button to select the clip.

2 Select [REPAIR] in the main menu → [CLIP] and press the <SET> button.

3 Use the cursor buttons and the <SET> button to select [YES].

This restores the clip.

NOTE

- You can restore clips with yellow defective clip indicators. Delete clips with red defective clip indicators. If the clips cannot be deleted, format the P2 card.
  During restoration of the clips, however, the defective clip indicator may change from yellow to red, and result in the inability to restore the clips.

Reconnecting incomplete clips

Incomplete clips may be generated when clips recorded on multiple P2 cards (connected clips) are separately copied from each card. The reconnection function generates one clip (the original, connected clip) from incomplete clips.

1 Use the cursor buttons and the <SET> button to select incomplete clips to be reconnected.

Usually, thumbnails of incomplete clips (clips with [!] indicator) are displayed in a line.

2 Select [RE-CONNECT] in the main menu → [CLIP] and press the <SET> button.

3 Use the cursor buttons and the <SET> button to select [YES].

This reconnects incomplete clips.

NOTE

- Incomplete clip indicators will remain displayed when only some clips are reconnected, unless all the constituent clips of the original clip are reconnected.

Copying clips

Selected clips can be copied to a P2 card or a connected USB storage device in the desired slot.

1 Use the cursor buttons to move the cursor over the clip to be copied, and press the <SET> button to select the clip.

2 In the main menu → [CLIP], move the cursor from the [COPY] list over the destination and press the <SET> button.

- When multiple clips are selected, the number of selected clips is displayed after pressing the <SET> button.
- If the copy destination is a storage device, select the copy destination properties.

3 Move the cursor to [YES] in the confirmation message and press the <SET> button.

This starts copying of the clip.

4 When the completion message appears, press the <SET> button.

NOTE

- Turning off the power or inserting/removing a card during copying may damage the P2 card. If you accidentally make these mistakes, it can result in defective clips. After deleting the defective clips redo copying.
- Copying is not performed when the following error messages are displayed.
  - [LACK OF CAPACITY!]
    Copying could not be performed because the recording capacity of the copy destination is insufficient.
  - [UNKNOWN CONTENTS FORMAT!]
    Copying could not be performed because a defective clip is selected.

- [NO COPY TO SAME CARD!]
  Copying could not be performed because you are attempting to copy to the same card.
- [TOO MANY CLIPS!]
  Copying could not be performed because there are too many clips selected.

- If copying is performed while a text memo is selected in the lower part of the text memo, the section between the selected text memo position and the next text memo will be copied. If no text memo is found after the selected one, then the part after the selected text memo to the end of the clip will be copied. For details, refer to “Using a text memo to divide a clip and copy the necessary portion” (page 114).
- To interrupt copying, press <SHIFT> button + <EXIT> button or the <SET> button to cancel the operation. The clip being copied will be deleted from the copy destination.
- When identical clips (same [GLOBAL CLIP ID]) exist on the destination, [OVERWRITE?] is displayed. Select [YES] when overwriting the clip, and select [NO] when not overwriting the clip.

Setting clip metadata

Information such as the name of the person who shot the video, the name of the reporter, the shooting location, or text memos can be read from an SD memory card, and can be recorded as clip metadata.

Loading clip metadata (metadata upload)

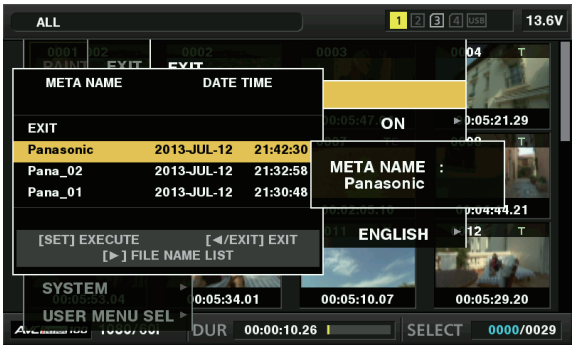


Fig. 1

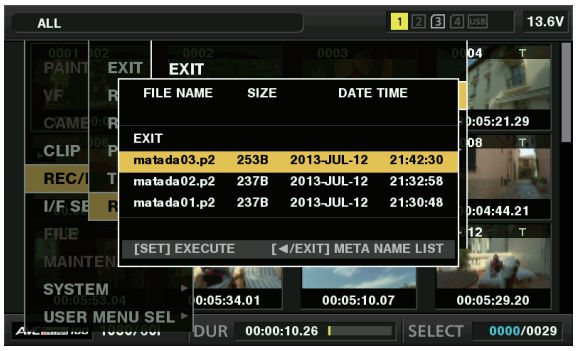


Fig. 2

1 Insert the SD memory card that contains the clip metadata (metadata upload file).

2 Select [LOAD] in main menu → [REC/PB] → [REC METADATA] and press the <SET> button.

The metadata name of the metadata upload file on the SD memory card is displayed. (Fig. 1)

3 Use the cursor buttons to select the desired file to be loaded, and select [YES].

- Upload starts.
- Uploaded metadata is retained even if the power is turned off.
- For confirmation of uploaded data, refer to “Checking and modifying uploaded metadata” (page 117).

NOTE

- While displaying metadata names, press the cursor button (▷) to switch to display of file names. (Fig. 2)
  Press the cursor button (◁) to return to display of metadata names.

Clip metadata items

Clip metadata includes the following items. Underlined items can be set by loading the metadata upload file on the SD memory card. Other items are set automatically during shooting. Using the latest update version of P2 Viewer Plus, metadata upload files can be written to SD memory cards using a computer. Download and install the latest version of P2 Viewer Plus from the following website.

http://pro-av.panasonic.net/

For details on SD memory cards to be used, refer to “Cautions when using SD memory cards” (page 22).

NOTE

- Files which were not edited by P2 Viewer Plus are displayed as [UNKNOWN DATA!] and may not be readable.

[GLOBAL CLIP ID]	Displays the global clip ID that shows the shooting status of the clip.
[USER CLIP NAME]	Displays the clip name set by the user.*1
[VIDEO]	Displays [FRAME RATE] (frame rate of the clip), [PULL DOWN] (pull-down format), and [ASPECT RATIO].
[AUDIO]	Displays [SAMPLING RATE] (sampling frequency of recorded audio) and [BITS PER SAMPLE] (quantizing bits for recorded audio).
[ACCESS]	Displays [CREATOR] (person who recorded the clip), [CREATION DATE] (date when the clip was recorded), [LAST UPDATE DATE] (date of the latest update of the clip), and [LAST UPDATE PERSON] (person who made the latest update of the clip).
[DEVICE]	Displays [MANUFACTURER] (name of the device manufacturer), [SERIAL NO.] (serial number of the device), and [MODEL NAME] (model name of the device).
[SHOOT]	Displays [SHOOTER] (name of the person who shot the video), [START DATE] (start date of shooting), [END DATE] (end date of shooting), and [LOCATION]/[ALTITUDE]/[LONGITUDE]/[LATITUDE]/[SOURCE]/[PLACE NAME] (altitude, longitude, latitude, and source of the information and name of the location).
[SCENARIO]	Displays [PROGRAM NAME], [SCENE NO.], and [TAKE NO.].
[NEWS]	Displays [REPORTER] (name of the reporter), [PURPOSE] (purpose of shooting), and [OBJECT] (object of shooting).
[MEMO]*2	Displays [NO.] (the number of the text memo), [OFFSET] (location of the frame where the text memo is added), [PERSON] (person who recorded the text memo added to the clip), and [TEXT] (content of the text memo).

[THUMBNAIL]	Displays the location of the frame (frame offset) and the size (height and width) of the image selected as the thumbnail image.
[PROXY]	Displays information such as proxy format when proxy is added.

*1 You can select the [USER CLIP NAME] recording method. For details, refer to “Selecting the [USER CLIP NAME] recording method” (page 117).

*2 When entering [MEMO], make sure to enter [TEXT]. It is not possible to record only [PERSON] (the person inputting the memo), or [OFFSET] (the recording position).

Checking and modifying uploaded metadata

Details of metadata uploaded from an SD memory card can be checked.

Fig. 1

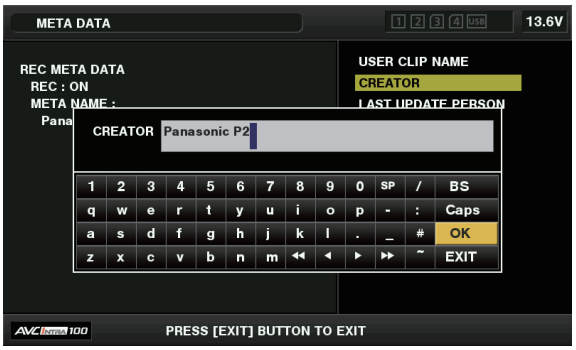

META DATA
13.6V
REC META DATA
REC : ON
USER CLIP NAME
CREATOR
CREATOR Panasonic P2
1 2 3 4 5 6 7 8 9 0 SP / BS
q w e r t y u i o p - : Caps
a s d f g h j k l . _ # OK
z x c v b n m EXIT
PRESS [EXIT] BUTTON TO EXIT

Fig. 2

1 Select [PROPERTY] in the main menu → [REC/PB] → [REC METADATA].

The metadata list is displayed.

2 Use the cursor buttons to move the cursor over the item to be checked, and press the <SET> button. (Fig. 1)

Settings of the uploaded metadata can be checked.

3 While checking the settings for the metadata, use the cursor buttons to move the cursor over the item where you want to change the setting, and press the <SET> button.

- A software keyboard screen is displayed, allowing you to modify the setting. (Fig. 2)
- While holding down the <SHIFT> button, press the cursor buttons (△/▽) to move to the beginning or end of the setting details to be changed.

Setting whether to record the uploaded metadata

Set [ON]/[OFF] in the main menu → [REC/PB] → [REC METADATA] → [RECORD]. This item is set to [OFF] in the factory settings.

Selecting the [USER CLIP NAME] recording method

In the main menu → [REC/PB] → [REC METADATA] → [USER CLIP NAME], select the [USER CLIP NAME] recording method from either [TYPE1] or [TYPE2].

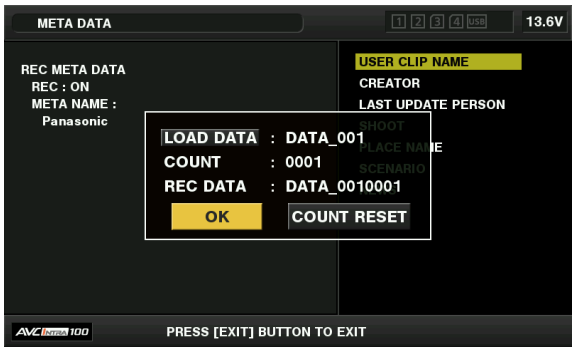
■ [TYPE1] (factory settings)

Status of clip metadata	[USER CLIP NAME] to be recorded
When clip metadata has been loaded	Uploaded data
When no clip metadata has been loaded, or when setting disables recording of loaded clip metadata	Same as [GLOBAL CLIP ID]

■ **[TYPE2]**

Status of clip metadata	[USER CLIP NAME] to be recorded
When clip metadata has been loaded	Uploaded data + [COUNT] value*
When no clip metadata has been loaded, or when setting disables recording of loaded clip metadata	Same as [CLIP NAME]

* The [COUNT] value is indicated as a four-digit number.
The [COUNT] value is incremented each time a new clip is generated, if clip metadata has been loaded and [TYPE2] has been selected as the recording method.
The [COUNT] value can be reset using the following method.
When selecting [PROPERTY] in the main menu → [REC/PB] → [REC METADATA], and selecting [USER CLIP NAME], the following screen is displayed. Move the cursor over [COUNT RESET], and press the <SET> button to reset the [COUNT] value to 1.



Initializing the metadata setting

Select [INITIALIZE] in the main menu → [REC/PB] → [REC METADATA], and press the <SET> button. Select [YES] when the confirmation screen is displayed.
The settings in the main menu → [REC/PB] → [REC METADATA] and onwards, including loaded metadata, are initialized.

Setting metadata display language

You can set the language for displaying metadata. Select [LANGUAGE] in the main menu → [REC/PB] → [REC METADATA], select the display language, and press the <SET> button.
When you select the [NTSC (J)] region, you can choose either [ENGLISH] or [JAPANESE]. Refer to “Setting the region of use (setting frame frequency, etc.)” (page 11).

NOTE

- Hidden English characters are not displayed properly but are displayed as “∗”.
- Only alphanumeric characters can be entered.

Formatting a P2 card

1 Select [FORMAT] in the main menu → [CLIP].

- Select the slot number where the P2 card to be formatted is inserted, and press the <SET> button.
- Select [EXIT] when you do not wish to format the card.

2 Use the cursor buttons and the <SET> button to select [YES].

The selected P2 card is formatted.

NOTE

- Data deleted as a result of formatting cannot be restored. Always check the data before formatting.
- If the CPS password has been set, the confirmation message whether to select the encrypted format [CPS(ENCRYPT)] or normal format [NORMAL] is displayed when selecting a slot. When the encrypted format is selected, the microP2 memory card is encrypted.

Formatting SD memory cards

SD memory cards can also be formatted from the thumbnail screen. With an SD memory card inserted into the camera, perform the following operation.

1 Select [FORMAT] in the main menu → [CLIP].

- Select [SD CARD], and press the <SET> button.
- Select [EXIT] when you do not wish to format the card.

2 Use the cursor buttons and the <SET> button to select [YES].

The SD memory card is formatted.

NOTE

- SD memory cards can also be formatted in the main menu → [FILE] → [FORMAT SD CARD].
  For details, refer to “Formatting SD memory cards” (page 86).
- Data deleted as a result of formatting cannot be restored. Always check the data before formatting.

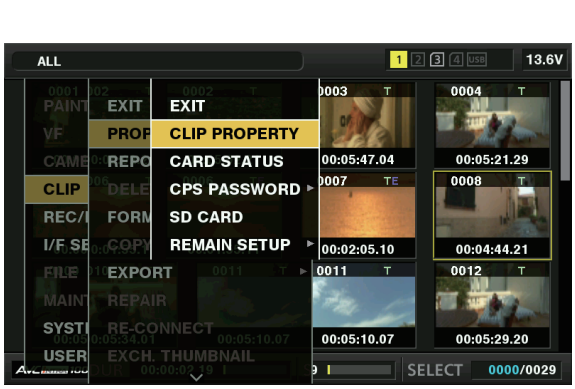
Properties

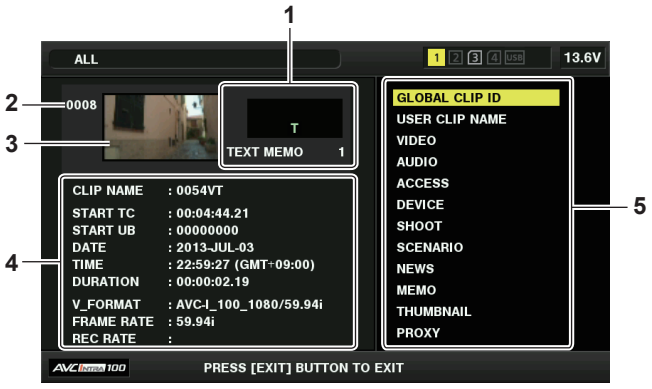
Clip properties and P2 card status are displayed.

It is possible to edit and rewrite recorded clip metadata while clip properties are displayed.

Clip properties

Select [CLIP PROPERTY] in the main menu → [CLIP] → [PROPERTY].





1 Clip information

Displays the indicators added to the clip and the number of added text memos.

The [🔒] mark will be displayed if the P2 card in which the clip is recorded is write-protected.

2 Clip number

NOTE

- For clips that cannot be played back, the number is displayed in red.

3 Thumbnail

4 Clip information

Displays detailed information about the clip.

[CLIP NAME]	Displays clip names.
[START TC]	Displays the time code value at the start of the recording.
[START UB]	Displays the user bit value at the start of the recording.
[DATE]	Displays the date of the recording.
[TIME]	Displays the time at the start of recording.
[DURATION]	Displays the time length of the clip.
[V_FORMAT]	Displays recording format of the clip.
[FRAME RATE]	Displays the frame rate for playback.
[REC RATE]	Displays the recording frame rate. For the clips recorded with variable frame rate compatible devices, the frame rate at the time of shooting is displayed.

5 Clip metadata

The items for referencing clip properties (clip metadata) are displayed.

For details, refer to “Setting clip metadata” (page 116).

Modifying recorded clip metadata

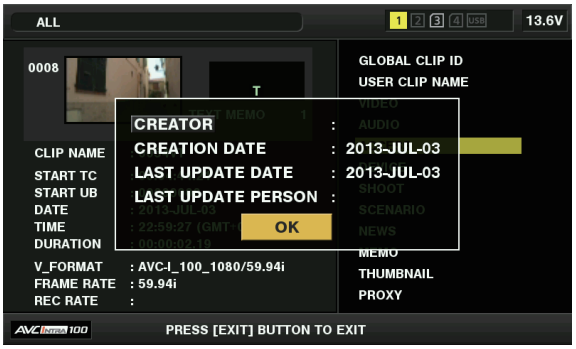


Fig. 1

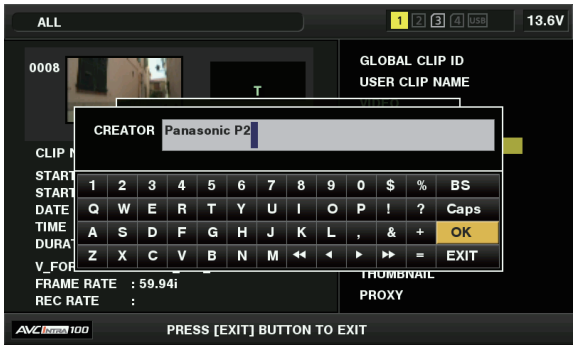

ALL
13.6V
0008
GLOBAL CLIP ID
USER CLIP NAME
CREATOR Panasonic P2
1 2 3 4 5 6 7 8 9 0 $ % BS
Q W E R T Y U I O P ! ? Caps
A S D F G H J K L , & + OK
Z X C V B N M EXIT
FRAME RATE : 59.94i
REC RATE :
PROXY
PRESS [EXIT] BUTTON TO EXIT

Fig. 2

1 Display the metadata details window for the clip to be modified on the clip properties screen.

2 Place the cursor on the item to be modified using the cursor buttons. (Fig. 1)

The item of the metadata that can be modified is shown as [CREATOR], etc.

3 Press the <SET> button.

Information about keyboard operation is the same as “Checking and modifying uploaded metadata” (page 117).

- The input window (soft keyboard) for modifying metadata is displayed. (Fig. 2)
- Enter characters with the keyboard to modify the metadata.

4 Press the [OK] button on the keyboard.

The modified metadata is written on the clip and the screen returns to the metadata details window.

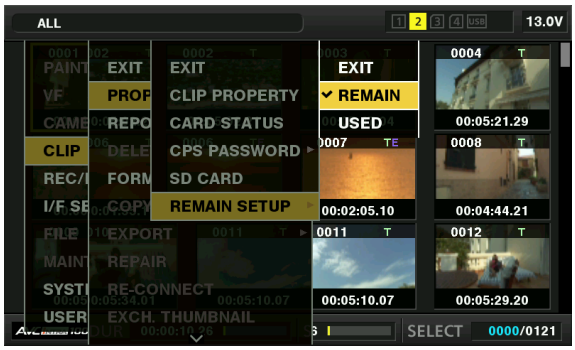
NOTE

- To delete each item in [LOCATION] (shooting location data) of [SHOOT], the item cannot be deleted alone. By setting the [ALTITUDE] item to empty, other [LONGITUDE] and [LATITUDE] items are collectively deleted.
- The metadata for a clip with the incomplete clip indicator [!] cannot be modified. For the clips recorded on multiple P2 cards, modify the metadata while all P2 cards are inserted.
- Any [MEMO] with 101 characters or more cannot be modified.

P2 card status display

■ P2 card status display settings

You can select the P2 card status display from either remaining capacity or used capacity of the P2 card.



1 Press the <THUMBNAIL> button.

The thumbnail screen appears on the viewfinder screen.

2 Select either [REMAIN] (remaining capacity) or [USED] (used capacity) in the main menu → [CLIP] → [PROPERTY] → [REMAIN SETUP].

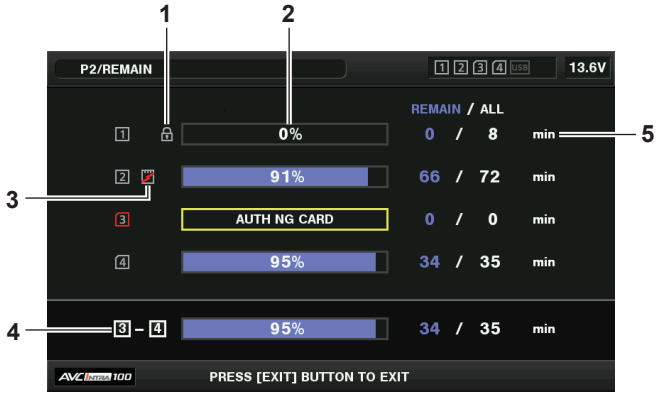
■ P2 card status display items

[REMAIN]	Displays remaining capacity on the P2 card as the P2 card status display. (Factory setting)
[USED]	Displays used memory capacity on the P2 card as the P2 card status display.

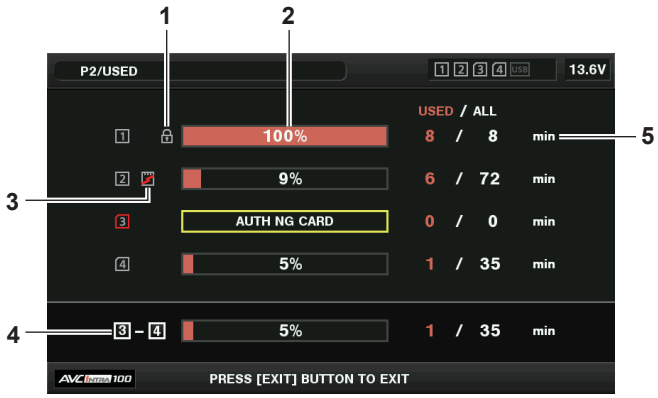
Contents of P2 card status display settings

Select [CARD STATUS] in the main menu → [CLIP] → [PROPERTY].

■ When [REMAIN] is selected



■ When [USED] is selected



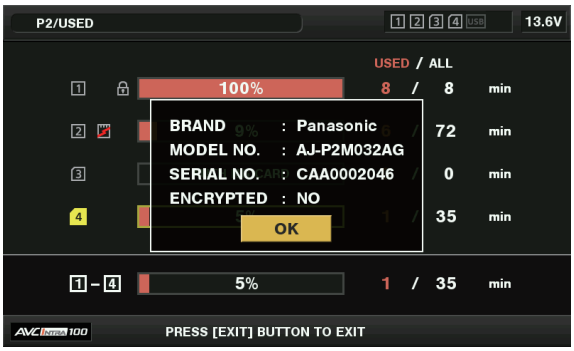


Fig. 1

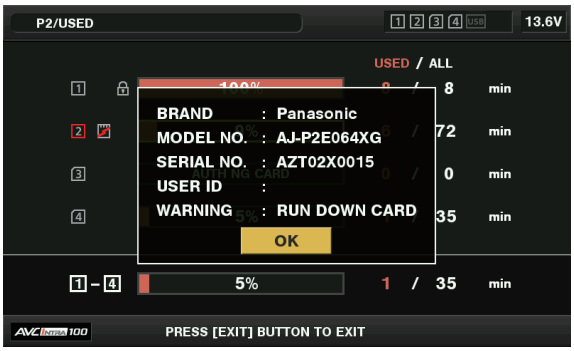


Fig. 2

1 Write-protected mark

The [🔒] mark appears when the P2 card is write-protected.

2 P2 card status (remaining capacity)

The remaining memory capacity of the P2 card is shown as a bar graph and percentage. The bar graph indicator moves to the left as the remaining capacity decreases.

The following displays may also appear, depending on the card status.

[FORMAT ERROR!]	An unformatted P2 card is inserted.
[NOT SUPPORTED!]	An unsupported card is inserted.
[NO CARD]	No P2 card is inserted.
[AUTH NG CARD]	Indicates that the card is a microP2 memory card which cannot authenticate a CPS password.

Use the cursor buttons to place the cursor on the P2 card for data to be accessed and press the <SET> button to display detailed information on the P2 card. Specific information such as the serial number and the user ID can be checked. (Fig. 1)

When the maximum number of clips that can be recorded in the P2 card has been reached, [OVER MAX NUMBER CLIPS] is displayed in the P2 card detailed information showing that the upper limit has been reached.

3 Warning card mark

When P2 cards are the following status, the [⚠] mark is displayed.

[RUN DOWN CARD]	The maximum number of overwrites on the P2 card has been exceeded.
[DIR ENTRY NG]	The directory structure on the P2 card is not supported.

The warning can be checked on the P2 card detailed information in “P2 card status (remaining capacity)” (page 121). (Fig. 2)

4 Total slot memory remaining capacity (or used capacity)
Displays the total remaining memory capacity (or used capacity)of the four slots.
The available space of a write-protected P2 card is not included in the total available space.

5 P2 card remaining capacity (or used capacity) / total capacity
This displays the remaining capacity (or used capacity) / total capacity of the P2 card. Since only the figures in minutes are displayed, the remaining memory capacity (or used capacity) for each P2 card may not match the total capacity.

Setting CPS password

To set a CPS password, either load the password from the SD memory card or use the menu of the camera to enter the password.
Only one CPS password can be set on the camera. Loading the CPS password again overwrites the previously saved password.

Loading CPS password from SD memory card

1 Download and install the latest P2 Viewer Plus into a computer.

2 With P2 Viewer Plus, generate a CPS password and write it to the SD memory card.

3 Load the CPS password file.

1) Start the camera, and insert the SD memory card into the SD card slot.

2) Open the thumbnail screen, and select the main menu → [CLIP] → [PROPERTY] → [CPS PASSWORD] → [LOAD].
The password file list is displayed.

3) Select the file to be used and press the <SET> button.
- When loading of the CPS password has succeeded, the message [LOADING PASSWORD COMPLETED!] is displayed.
- When loading of the CPS password has failed, the warning message is displayed. For warnings description, refer to “Warnings description list” (page 194).

NOTE

- The CPS password file generated on the SD memory card is encrypted. If it is no longer used, format the SD memory card for security risk management.

Setting CPS password using the menu of the camera

1 Open the thumbnail screen, and select the main menu → [CLIP] → [PROPERTY] → [CPS PASSWORD] → [SET].
The software keyboard to enter the CPS password is displayed.

2 Enter the CPS password with the keyboard.
Enter [PASSWORD] and [RETRY PASSWORD] for verification, and select [OK] to set the CPS password.
- When entry of the CPS password has succeeded, the message [SETTING PASSWORD COMPLETED!] is displayed.
- When entry of the CPS password has failed, the warning message is displayed. For warnings description, refer to “Warning/error displays in the thumbnail operation, menu operation, and USB storage mode” (page 197).

NOTE

- Up to 16 characters can be input.
- The entered password cannot be displayed on the device. Do not forget the password.

Deleting CPS password

When the CPS function is no longer used, delete the CPS password.

1 Open the thumbnail screen, and select the main menu → [CLIP] → [PROPERTY] → [CPS PASSWORD] → [DELETE].
[DELETING PASSWORD COMPLETED!] is displayed and the CPS password is deleted.

NOTE

- When the CPS password is deleted, automatic authentication of the encrypted microP2 memory card and encryption format function are disabled.

Manual CPS authentication

An encrypted microP2 memory card is authenticated on the camera automatically, and can be used only if authentication has succeeded.
If different encrypted microP2 memory card is inserted into the card slot on the device where different CPS password is authenticated, authentication will fail. To use the failed microP2 memory card temporarily, enter the authenticated CPS password onto the microP2 card manually with the following procedures. If the password matches, the card can be used.

1 Confirm that authentication has failed.

1) Display the thumbnail screen, and select [CARD STATUS] in the main menu → [CLIP] → [PROPERTY].
On the failed card, the slot number frame at the top right of the screen turns red, and [AUTH NG CARD] is displayed on the remaining capacity bar. Use the cursor buttons (△/▽) to set the card to the selected state.

2 Perform manual authentication.

1) On the card status screen, select [AUTHENTICATE] in the main menu → [CLIP].
The software keyboard to enter the CPS password is displayed.

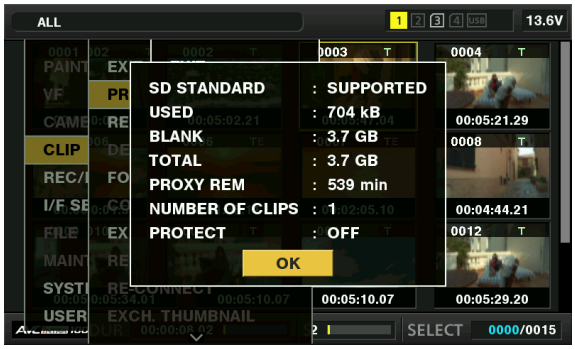
2) Enter the password set on the camera and select [OK].
- When entry of the CPS password has succeeded, the message [AUTHENTICATED SUCCESSFULLY!] is displayed.
- When entry of the CPS password has failed, the warning message (page 197) is displayed.

NOTE

- Manual authentication is valid temporarily. If the target microP2 card is removed or power is turned off, the CPS password set manually is disabled.
- Visit the following website for conditions where manual authentication is valid.
  http://pro-av.panasonic.net/
- The encrypted microP2 memory card is not recognized on the SD card slot in a computer.
- If the card is unable to be recognized, authenticate with the correct password, or format the card and use it as recording media, or remove it from the camera. Do not perform any operation other than manual authentication and formatting with the failed card inserted.

SD memory card status display

The status display enables confirmation of the SD memory card format condition, available memory space, etc.



Select [SD CARD] in the main menu → [CLIP] → [PROPERTY]. The same information can be displayed in the main menu → [FILE] → [SD CARD PROPERTY].

[SD STANDARD]	Indicates whether an SD memory card is formatted according to the SD/SDHC/SDXC standard. • [SUPPORTED]: Complies with SD/SDHC/SDXC standards • [NOT SUPPORTED]: Does not comply with SD/SDHC/SDXC standards
[USED]	Used capacity (bytes)
[BLANK]	Available space (bytes)
[TOTAL]	Total capacity (bytes)
[PROXY REM]	Remaining capacity for proxy recording
[NUMBER OF CLIPS]	The number of clips on an SD memory card when clips have been copied to an SD memory card
[PROTECT]	Write-protected status

Connecting to external devices using the <USB3.0> terminal (host) (USB storage mode)

You can use an HDD or SSD that can be connected via USB 2.0/USB 3.0. However, there are certain storage devices that cannot be used depending on the device.

Storage device types and available functions

The available functions differ depending on the storage device you will use. The storage device type is displayed after [PARTITION] on the left side of the storage device explorer screen.

For details, refer to “Storage device information display (explorer screen)” (page 126).

■ **Storage device type**

Storage device type	Features
[TYPE S]	A special format to enable fast read/write by card.
[P2STORE]	Indicates P2 STORE (AJ-PCS060G). Writing is disabled.
[FAT]	Storage devices where the primary partition is FAT16 or FAT32. The partition root or CONTENTS folder under any folders* is the target.
[OTHER]	Indicates other storage devices other than the above. File systems other than FAT16 and FAT32, such as NTFS.

* The hierarchy of folders is down to the 3rd level and the maximum number of folders is 100. Long file names and file names with double-byte characters are not supported. Examples of folder displays are shown below.

/CONTENTS	Can be displayed.
/SAMPLE/CONTENTS	Can be displayed.
/SAMPLE/20090101/CONTENTS	Can be displayed.
/SAMPLE/20090101/1200/CONTENTS	Cannot be displayed. (Cannot be displayed since this is a 4th level folder)

■ **Storage device types and available functions**

Available functions		Storage device type			
		[TYPE S]	[P2STORE]	[FAT]	[OTHER]
Thumbnail display		✓	✓	✓	—
Card unit	Card*1 → Storage	✓	—	✓	—
	Card*2 → Storage	—	—	—	—
	Storage → Card*1	✓	✓	—	—
	Storage → Card*2	—	—	—	—
Clip unit	Card → Storage	✓*4	—	✓	—
	Storage → Card	✓	✓	✓	—
Playback check*3		—	—	—	—
Clip image display		✓	✓	✓	—
Format		✓	—	✓	✓*5

*1 P2 or microP2 memory cards with 32 GB or lower capacity
*2 microP2 memory cards that exceed 32 GB
*3 Playback from the storage device is unavailable on the camera. Import the contents to the P2 card before playing back.
*4 If you perform additional clip writing, you will not be able to write back to that partition by card.
*5 Storage devices with a capacity of 2 TB or more cannot be formatted.

NOTE

- The <USB3.0> terminal also supports USB bus power (5 V, 0.9 A). However, there are certain devices that cannot run depending on the storage device used. In such cases, add a separate power supply to the storage device.
- A storage device cannot be connected to the <USB2.0> terminal (sub-host) (page 23).
- While connecting a storage device, use the fully charged battery or an external DC power supply to avoid problems in copying or formatting operations.
- Storage devices with capacities exceeding 2 TB (2048 GB) are not supported.
- Use a storage device within its guaranteed operational range (temperature, etc).
- Do not place the storage device in a location that is unstable or subject to vibration.
- Some storage devices may not function properly depending on the storage device and cable used.
- Use a storage device with sufficient capacity for copying.
- Do not connect multiple storage devices using a hub even if the storage devices are turned off. Do not connect other devices together with your storage device using a hub.
- During a format or copy operation, do not unplug the cable, eject the target P2 card, or turn off the camera or the storage device. Rebooting the camera and the storage device is required.
- Because the storage device is very sensitive, reading and writing data may become invalid depending on your usage. Please note that Panasonic has no responsibility for data loss caused from a storage device failure or other defects and any direct or indirect damage related to these.
- If the contents of the storage device used for copying data from the camera are replaced using another computer, the camera operations and storage device data cannot be guaranteed.
- For P2 cards containing defective clips, it is recommended that you copy data to a storage device after restoring in advance.
- A storage device with the SATA (Serial ATA) or PATA (Parallel ATA) interface connected using a USB conversion cable may not be recognized.
- Do not connect or disconnect the cable during playback on the camera. Playback may not be performed properly.

Connecting a storage device

1 Switch the camera to USB storage mode.

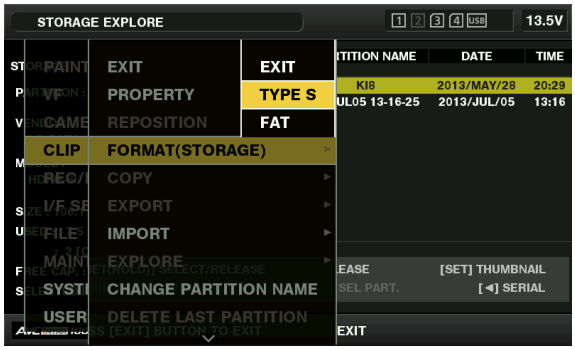
For details, refer to “Switching to the USB storage mode” (page 186).

2 Connect the storage device to the <USB3.0> terminal.

- When connecting a storage device which supports USB 3.0, use a cable that conforms to the USB 3.0 standard.
- You will not be able to achieve transfer rates faster than USB 2.0 rates using a USB 2.0 cable.
- If the storage device is recognized and is usable, [USB] (gray) on the top right of the thumbnail screen changes to [USB] (white).

Formatting a storage device

You can initialize the storage device to a usable format using the [TYPE S] or the [FAT] file system.



1 Select [STORAGE] in the main menu → [CLIP] → [EXPLORE] and press the <SET> button.

This opens the explorer screen.

2 Select desired format ([TYPE S], [FAT]) in the main menu → [CLIP] → [FORMAT(STORAGE)] and press the <SET> button.

3 Select [YES] in the confirmation message and press the <SET> button.

4 Select [YES] again when the confirmation message appears and press the <SET> button.

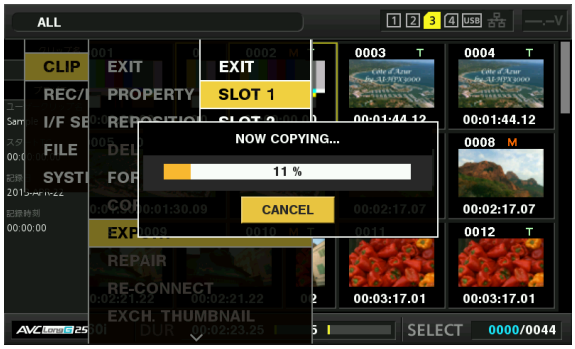
This formats the storage device.

NOTE

- Formatting the storage devices erases all of its contents. Data cannot be recovered once it is formatted. Always check the data before formatting.

Exporting to a storage device by card

You can export to a storage device (write to a storage device from a P2 card) by P2 card. The copy results and the maximum number of items that can be copied vary depending on format type of the storage device. You cannot perform copying once the capacity of the storage device is exceeded.



■ [TYPE S]

A partition is created for each [TYPE S] card. All data included in the card are copied there. You can check the serial number and part number of the P2 card copied using the camera's explorer screen.

The maximum number of items that can be copied is 23.

■ [FAT]

A folder is created for each card. All data included in the card are copied there. You can check the folder names in the camera's explorer screen.

Folders are created in 2 levels; the date folders on the first level and the time folders on the second.

Example) August 30, 2013, 12:34:56: /13-08-30/12-34-56

The maximum number of items that can be copied is 100.

1 Select [EXPORT] in the main menu → [CLIP] and press the <SET> button.

2 Move the cursor to the card slot number of the copy source and press the <SET> button.

For [TYPE S], selecting [ALL SLOT] exports all cards currently inserted.

3 Select [YES] in the confirmation message and press the <SET> button.

This starts the exporting process. A progress bar is displayed during export.
[COPY COMPLETED!] will be displayed when exporting is completed.

NOTE

- For export with [TYPE S], P2 card data and copied data can be verified (compared) automatically after exporting. Verification at the time of export is enabled in the factory setting. When you set to disable verification at the time of export, exported data is not verified, and the time until export completes will shorten. To disable verification, set [VERIFY] to [OFF] in the main menu → [CLIP] → [STORAGE COPY SETUP]. For [FAT], verification is not performed regardless of this setting.
- To cancel the export process, press the <SET> button. A [CANCEL] confirmation message will appear. Select [YES] and press the <SET> button.
- Even if you cancel the process during verification, copying to the P2 card will continue until it is completed.
- microP2 memory cards that exceed 32 GB cannot be exported and imported. Use copied clips.

Copying to a storage device by clip

You can copy only the selected clips to a storage device.

1 Go to the thumbnail screen. Use the cursor buttons to place the cursor on a clip you want to copy and press the <SET> button.

You can also select multiple clips.

2 Select [STORAGE] in the main menu → [CLIP] → [COPY] and press the <SET> button.

A list of folders or partitions in the storage device is displayed.

3 Select the copy destination and press the <SET> button.

4 Select [YES] in the confirmation message and press the <SET> button.

This starts the copying process. A progress bar is displayed during copying.
[COPY COMPLETED!] will be displayed when copying is completed.

NOTE

- When the storage device has a [FAT] file system, the folders displayed are as follows:

- Root
- Folders down to the 3rd level including the CONTENTS folder

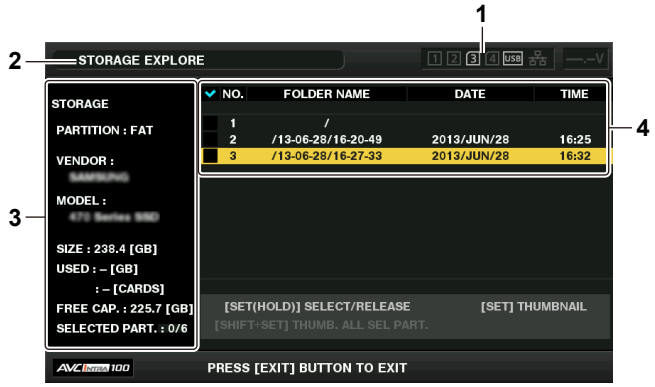
・To copy to a [TYPE S] storage device, one or more partitions are required. You can either format the storage device to [FAT] or perform copying after creating a partition through the export process.
・To cancel the copy process, use the cursor buttons to place the cursor on [CANCEL] and press the <SET> button. A [CANCEL] confirmation message will appear. select [YES] and press the <SET> button. Clips copied halfway to the copy destination are deleted.
・If you have copied clips to a [TYPE S] storage device, you will not be able to import to that partition by card. Also, the part number display of the card at that instance will display [UNKNOWN].

Storage device information display (explorer screen)

You can select the following in the explorer screen display.

- Storage device information display
- Storage device partition or folder thumbnail display selection
- Target partition or folder selection

To display the explorer screen, select [STORAGE] in the main menu → [CLIP] → [EXPLORE] and press the <SET> button.



1 Storage device indicator
This displays the connected / not connected status and the storage device type.

2 Display mode
This indicates that the explorer screen of the storage device is currently displayed.

3 Device information
For [TYPE S] and [P2STORE] (storage devices that allow reading/writing by card)

[PARTITION]	[TYPE S]/[P2STORE]
[VENDOR]	Vendor name
[MODEL]	Model name
[SIZE]	Total capacity (unit: GB)
[USED]	Used capacity (unit: GB) Used P2 card area (unit: number of clips), maximum of 23
[FREE CAP.]	Remaining capacity (unit: GB)
[SELECTED PART.]	Number of partitions selected

For [FAT] and [OTHER] (other storage devices)

[PARTITION]	[FAT]/[OTHER]
[VENDOR]	Vendor name
[MODEL]	Model name
[SIZE]	Total capacity (unit: GB)
[FREE CAP.]	Remaining capacity (unit: GB)
[SELECTED PART.]	Number of folders selected

4 Partition or folder information
For [TYPE S] and [P2STORE] (partition information)

[☑]	Displays a checkmark when a target partition is selected
[NO.]	Partition number
[MODEL]	P2 card model name
[PARTITION NAME]	Name assigned to the partition
[DATE]	Partition record date
[TIME]	Partition record time
[SERIAL]	P2 card serial number

For [FAT] and [OTHER] (folder information)

[☑]	Displays a checkmark when a target partition is selected
[NO.]	Folder number
[FOLDER NAME]	Folder name (excluding the CONTENTS folder)
[DATE]	Folder creation date

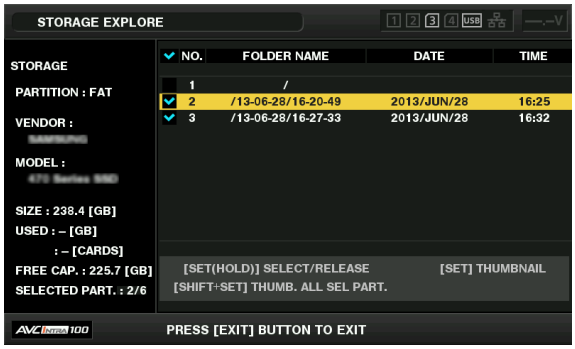
[TIME]	Folder creation time

NOTE

- For [TYPE S] storage devices, you can switch between the partition name and serial name display using the cursor buttons.
- If there is an invalid partition in [P2STORE], the partition information is displayed in gray.
- You can also check the remaining capacity of the target partition in the main menu → [CLIP] → [PROPERTY] → [FREE CAP. OF PARTITION].

Selecting the target folder/partition in the explorer screen

You can display all clips included in the selected partition/folder as thumbnails by selecting partitions/folders as targets. You can display up to six partitions/folders. When the seventh partition/folder is specified, setting is disabled and a warning is displayed.



1 In the explorer screen, place the cursor on the partition/folder.

2 Press and hold the <SET> button (for one second or more).

The partition/folder is selected and a checkmark is displayed.
The selected target partition/folder is valid until the storage device is disconnected or the power is turned off. To cancel the selected partition/folder, hold down the <SET> button (for one second or more) again on the selected partition.
Press the <CANCEL> button to deselect all partitions/folders.

NOTE

- In [TYPE S] storage devices, [MODEL] is [UNKNOWN] and clips recorded across other partitions will not be one normal clip. Copying clips to a [TYPE S] storage device changes the copy destination's partition [MODEL] to [UNKNOWN].
- The setting of the partition name can be made for the [TYPE S] storage device. The preset partition name is displayed in [PARTITION NAME] on the explorer screen.

Setting a partition name in the explorer screen

When the storage device is [TYPE S], the name (up to 20 characters) can be set to the partition. The preset partition name is displayed in [PARTITION NAME] on the explorer screen.

1 In the explorer screen, place the cursor on the partition you want to set up.

You can display the thumbnail list and set a name for the partition by pressing the <SET> button.

2 Press the <MENU> button.

3 Select [CHANGE PARTITION NAME] in the main menu → [CLIP] and press the <SET> button.

This displays the soft keyboard.

4 Enter the partition name and select [OK].

The partition name is set.

Deleting the last partition in the explorer screen

You can delete the last partition on a storage device.

1 In the explorer screen, place the cursor on the last partition.

2 Select [DELETE LAST PARTITION] in the main menu → [CLIP] and press the <SET> button.

NOTE

- You can only delete the last partition when using a [TYPE S] storage device. You can only delete the last partition. You cannot delete other partitions.
- Since deleted partitions cannot be recovered, perform a check thoroughly before deleting.

Displaying the storage device clip thumbnails and the video monitor

Displaying thumbnails

You can display and manage clips saved in a storage device, as well as display the thumbnail screen for clips saved in a P2 card attached to the camera.

1 Open the explorer screen.

Partitions or folders are displayed in a list.

2 Use the cursor buttons to place the cursor on the partition or folder you want to display on the thumbnail screen, and press the <SET> button.

This displays the thumbnails of clips in the partition or folder. You can go back to the main explorer screen by clicking the <EXIT> button.

NOTE

- When target partitions are selected, you can display thumbnails in all partitions selected as targets by pressing <SHIFT> + <SET> buttons.

■ Information display items

1 Clip information

Clip properties display

2 Storage device information

For [TYPE S]

[SERIAL]	P2 card serial number
[MODEL]	P2 card model name
[SELECTED PART.]	Displays a checkmark when a target partition is selected
[SELECTED PART. NO.]	List of selected partition numbers (only displayed when multiple partitions are selected)
[NO.]	Partition number
[DATE]	Partition record date
[TIME]	Partition record time
[VERIFY]	Verification settings and results during recording, [ON/FAILED] • [ON/FAILED]: Verification performed. Items match. • [ON/FINISHED]: Verification performed but no match found. (For [P2STORE], [—] is displayed.) • [OFF]: Verification not performed
[NAME]	Partition name defined by the user
[SIZE]	Total capacity of the storage device
[USED]	Used storage device capacity
[FREE CAP.]	Remaining storage device capacity

For [FAT]

[SELECTED PART.]	Displays a checkmark when a target partition is selected
[SELECTED PART. NO.]	List of selected folder numbers (only displayed when multiple folders are selected)
[NO.]	Folder number
[DATE]	Folder creation date
[TIME]	Folder creation time
[FOLDER]	Folder name (creation date and time are not displayed in the root folder)
[SIZE]	Total capacity of the storage device

[FREE CAP.]	Remaining storage device capacity

NOTE

- You can change the thumbnail screen display if necessary.
- The 1001st clips onwards are not displayed.

Displaying clip information

You can display each type of metadata of clips saved in a storage device. The display mode is the same as the P2 card clip properties.

1 In the storage device thumbnail screen, move the cursor to the target clip.

2 Press the <MENU> button.

3 Select [CLIP PROPERTY] in the main menu → [CLIP] → [PROPERTY] and press the <SET> button.

This cannot be modified.

Deleting clips

You can delete unnecessary clips saved in a storage device.

1 In the storage device thumbnail screen, select the clip you want to delete.

2 Press the <MENU> button.

3 Select [DELETE] in the main menu → [CLIP] and press the <SET> button.

4 Move the cursor to [YES] in the confirmation message and press the <SET> button.

NOTE

- You may not be able to delete clips with defective clip or unknown clip indicators.

Writing back to the P2 card from a storage device (import)

Importing from a [TYPE S] storage device or [P2STORE] by partition

You can import (write back to a P2 card from as storage device) to a P2 card with the same part number as the source card by partition (card).

1 Insert a P2 card that will serve as the input destination.

Make sure to insert a formatted P2 card.

2 Connecting a storage device.

3 Select [STORAGE] in the main menu → [CLIP] → [EXPLORE] to display the explorer screen.

4 In the explorer screen, display the partition thumbnails to be imported.

5 Select [IMPORT] in the main menu → [CLIP].

6 Place the cursor on the import destination P2 card slot number and press the <SET> button.

Start importing by selecting [YES] in the confirmation message.
[COPY COMPLETED!] will be displayed when importing is completed.

NOTE

- Importing to a P2 card that is different from the source P2 card may result in incomplete clips depending on the clips. In this case, use the reconnection function to reconfigure the clips.
- You can switch verification during copying on and off by setting the main menu → [CLIP] → [STORAGE COPY SETUP] → [VERIFY].
- You cannot import by partition to a P2 card of a different model. Perform copying by clip instead.

Copying to a P2 card by clip

You can specify a storage device clip and copy it to a P2 card.

1 Open the storage device thumbnail screen.

2 Select the clip you want to copy.

3 Press the <MENU> button.

4 In the main menu → [CLIP] → [COPY] → [STORAGE] list, move the cursor over the copy destination and press the <SET> button.

Start importing by selecting [YES] in the confirmation message.
[COPY COMPLETED!] will be displayed when copying is completed.

Chapter 7 Menu Operations

This chapter describes how to operate the camera menus, the structure, and details of the setting menu.

Setting menu structure

Menu types and how to open them

Menu type	Use	How to open
[USER MENU]	In the main menu → [USER MENU SEL], you can select the desired items and pages and register to [USER MENU]. You can select them depending on the purpose or frequency of use to make a unique menu structure. For details, refer to “Setting [USER MENU]” (page 135).	Displayed by pressing the <MENU> button.
Main menu	You can set all items in the setting menu. The main menu has a structure of categorized layers according to intended use and setting frequency.	Displayed by pressing and holding the <MENU> button for three seconds or more.
[OPTION MENU]	Menu items are prepared to take into account additional functions in the future. Please consult your vendor for more details.	Displayed by pressing the <MENU> button while pressing and holding the <LIGHT> button.

Main menu structure

[PAINT]		
	[RB GAIN CONTROL]	These are items for performing fine image adjustments while monitoring the output waveform of the camera using the waveform monitor. You will need support from video engineers to use configure these settings. These menu item settings are enabled when using the camera as a standalone device. These menu items can be set from an external remote controller. These menu items cannot be set when the thumbnail screen is displayed.
	[RGB BLACK CONTROL]	
	[MATRIX]	
	[COLOR CORRECTION]	
	[LOW SETTING]	
	[MID SETTING]	
	[HIGH SETTING]	
	[ADDITIONAL DTL]	
	[SKIN TONE DTL]	
	[KNEE/LEVEL]	
	[GAMMA]	
	[[S] CAMERA SETTING]	
[VF]		
	[VF DISPLAY]	These items are shown when selecting contents to show in the viewfinder screen. These menu items cannot be set when the thumbnail screen is displayed.
	[VF MARKER]	
	[VF USER BOX]	
	[VF INDICATOR]	
	[MODE CHECK IND]	
	[!LED]	
[CAMERA]		
	[CAMERA ID]	These are items for changing the settings based on the condition of subject when the camera is operated. These menu items cannot be set when the thumbnail screen is displayed.
	[SHUTTER SPEED]	
	[SHUTTER SELECT]	
	[USER SW]	
	[SW MODE]	
	[WHITE BALANCE MODE]	
	[USER SW GAIN]	
	[LENS/IRIS]	
	[AGC]	

[CLIP]		
	[PROPERTY]	These items are used when performing various tasks, such as playing back, deleting, and copying clips, and editing metadata, while checking the thumbnail of the clips displayed in the LCD monitor. These menu items are enabled when the thumbnail screen is displayed. Clip operations such as [DELETE] or [COPY] are enabled when the target thumbnail is selected. Some items are displayed only in specific situations such as in USB storage mode or on the explorer screen.
	[REPOSITION]	
	[DELETE]	
	[FORMAT]	
	[FORMAT(STORAGE)]	
	[COPY]	
	[EXPORT]	
	[IMPORT]	
	[REPAIR]	
	[RE-CONNECT]	
	[EXCH. THUMBNAIL]	
	[EXPLORE]	
	[AUTHENTICATE]	
	[CHANGE PARTITION NAME]	
	[DELETE LAST PARTITION]	
	[DELETE FOLDER]	
	[THUMBNAIL SETUP]	
	[STORAGE COPY SETUP]	

[REC/PB]		
	[REC FUNCTION]	These are various types of setting items when performing camera recording and playback.
	[REC/PB SETUP]	
	[PROXY SETUP]	
	[TC/UB]	
	[REC METADATA]	

[I/F SETUP]		
	[OUTPUT SEL]	These are items for setting related to audio and video input/output and display, and setting battery, audio, video output, etc.
	[SDI OUT1 MARKER]	
	[MONI OUT MARKER]	
	[DOWNCON SETTING]	
	[GENLOCK]	
	[MIC/AUDIO]	
	[USB/LAN]	
	[LCD MONITOR]	
	[BATTERY/P2CARD]	
	[BATTERY SETTING]	

[FILE]		
	[SETUP DATA (SD CARD)]	These are items for performing file-related operations such as reading from an SD memory card containing menu settings data, and handling lens files and lens chromatic aberration correction (CAC) files. These menu items cannot be set when the thumbnail screen is displayed.
	[SETUP DATA SELECT]	
	[CAC FILE (SD CARD)]	
	[LENS FILE]	
	[LENS FILE (SD CARD)]	
	[SCENE]	
	[SD CARD PROPERTY]	
	[FORMAT SD CARD]	
	[LOAD USER DATA]	
	[INITIALIZE]	

[MAINTENANCE]		
	[SYSTEM CHECK]	These are items for performing maintenance inspection of the camera. These menu items cannot be set when the thumbnail screen is displayed.
	[LENS ADJ]	
	[BLACK SHADING]	
	[WHITE SHADING]	
	[LENS FILE ADJ]	
	[CAC ADJ]	

[SYSTEM]		
	[SYSTEM MODE]	These items are used for checking and updating the camera's firmware version. Set the system frequency, the number of lines, and recording format.
	[SYSTEM SETUP]	
	[HOURS METER]	
	[VERSION]	
	[UPDATE]	
[USER MENU SEL]		
	—	This menu is used to set the items to be displayed in [USER MENU]. For details on items that can be set, refer to "Setting items to [USER MENU] and loading/reading the settings to a data file" (page 170).

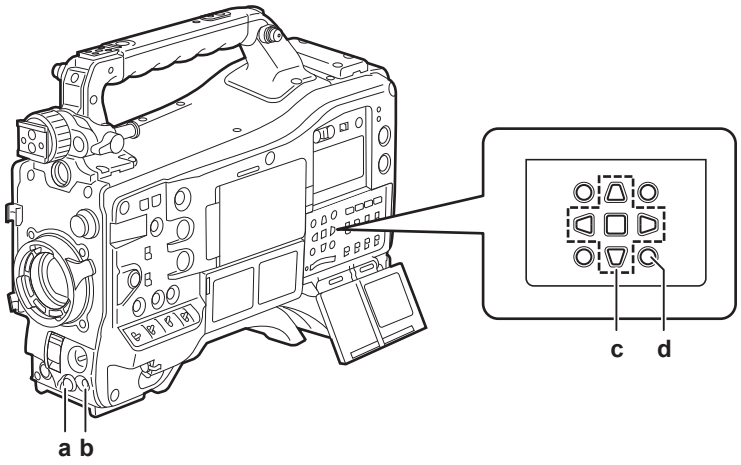
[OPTION MENU] structure

[OPTION]
[AREA SETTING]

Setting menu display

Setting menu basic operations

You can change camera settings using the setting menu according to the shooting scene and recording details.
The menu is divided into the main menu, sub-menu, and setting item menu.
Set data are written and saved in the camera's internal memory.
This section describes main menu operations. Main menu operation is the same as the other menus except when opening the menu screen.



a: Jog dial button

b: <MENU> button

c: ▲►▼◄ cursor buttons
■ <SET> button

d: <MENU> button (cursor)

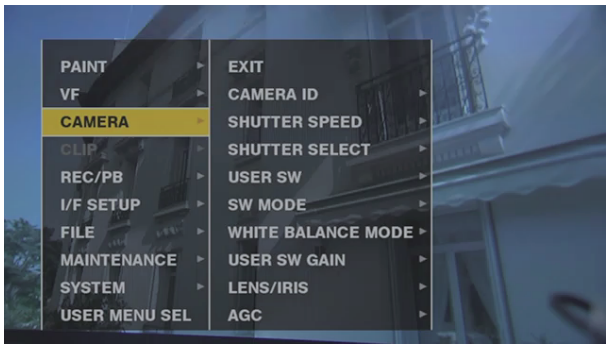


Fig. 1

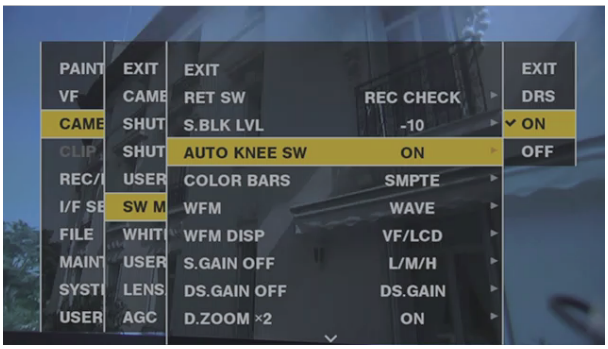


Fig. 2

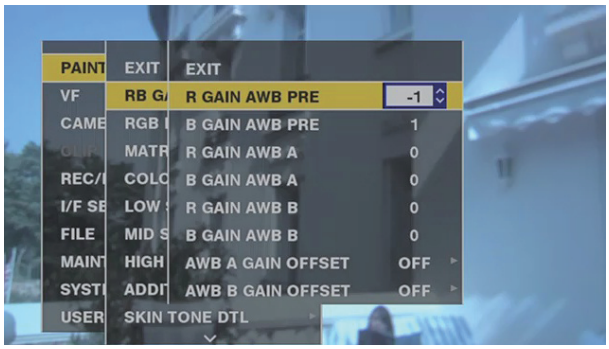


Fig. 3

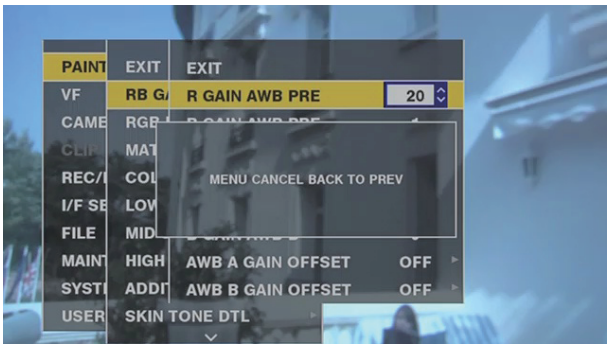


Fig. 4

1 Press and hold the <MENU> button for three seconds or more when not recording.

- The main menu is displayed.

2 Use the jog dial button (or the cursor buttons (△/▽)) to place the cursor on the corresponding menu item. (Fig. 1)

- Press the cursor buttons (△/▽) to move the cursor up or down.
- If there is a menu in the next level, [►] is displayed in the menu items.
  Press the jog dial button, the cursor button (▷), or the <SET> button to open lower-level menus. (Fig. 2)
- Press the cursor button (◁) or the <EXIT> button to return to the upper levels. You can go back to the upper levels by using the jog dial button to place the cursor on the topmost line ([EXIT]) then pressing it.

3 Press the jog dial button (or the <SET> button).

- The confirmation screen is displayed depending on the menu item.
  Select the process using the cursor buttons (△/▽/▷/◁), and press the <SET> button.
  A checkmark is placed in front of the set item.
- In some menus, a screen for value setting is displayed. (Fig. 3)

4 Press the <MENU> button to close the menu.

- This brings you back automatically to the previous screen depending on the menu item.

■ **To perform cancellation while setting**

1 Push the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side. Alternatively, press the <EXIT> button while holding down the <SHIFT> button.

[MENU CANCEL BACK TO PREV] is displayed. (Fig. 4)

2 Push the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side again. Alternatively, press the <EXIT> button while holding down the <SHIFT> button.

The changed value returns to the value before changing.

NOTE

- You will need to restart the camera if the number of lines and frequency setting of the system change.

Setting [USER MENU]

1 Select the main menu → [USER MENU SEL].

2 Select and display various items according to level.

3 Put checkmarks [✓] on the items to be displayed in [USER MENU].

You can select menu items in each item or page. You can select up to 64 items.
Selected items are displayed on the main menu page or item in order. For details on items that can be selected, refer to “Setting items to [USER MENU] and loading/reading the settings to a data file” (page 170).

Menu list

[PAINT]

[RB GAIN CONTROL]

Item	Description of settings		Remark
[R GAIN AWB PRE]	Sets the Rch gain when the <WHITE BAL> switch is on <PRST>. **[–200]…[0]…[200]**		• Settings made through the menu are disabled when the remote control unit and extension control unit are connected. (Setting values are displayed.)
[B GAIN AWB PRE]	Sets the Bch gain when the <WHITE BAL> switch is on <PRST>. **[–200]…[0]…[200]**		
[R GAIN AWB A]	Sets the Rch gain when the <WHITE BAL> switch is on <A>. **[–200]…[0]…[200]**		
[B GAIN AWB A]	Sets the Bch gain when the <WHITE BAL> switch is on <A>. **[–200]…[0]…[200]**		
[R GAIN AWB B]	Sets the Rch gain when the <WHITE BAL> switch is on <B>. **[–200]…[0]…[200]**		
[B GAIN AWB B]	Sets the Bch gain when the <WHITE BAL> switch is on <B>. **[–200]…[0]…[200]**		
[AWB A GAIN OFFSET]	Sets the Rch gain and Bch gain when performing automatic white balance after the <WHITE BAL> switch is on <A>.		
	[ON]	Keeps the values set for [R GAIN AWB A] and [B GAIN AWB A].	
	[OFF]	Sets the value of Rch gain and Bch gain to [0].	
[AWB B GAIN OFFSET]	Sets the Rch gain and Bch gain when performing automatic white balance after the <WHITE BAL> switch is on <B>.		
	[ON]	Keeps the values set for [R GAIN AWB B] and [B GAIN AWB B].	
	[OFF]	Sets the value of Rch gain and Bch gain to [0].	

____ are factory settings.

[RGB BLACK CONTROL]

Item	Description of settings		Remark
[MASTER PED]	Sets the master pedestal level. **[–200]…[16]…[200]**		• Settings made through the menu are disabled when the remote control unit and extension control unit are connected. (Setting values are displayed.)
[R PEDESTAL]	Sets the Rch pedestal level. **[–100]…[0]…[100]**		
[G PEDESTAL]	Sets the Gch pedestal level. **[–100]…[0]…[100]**		
[B PEDESTAL]	Sets the Bch pedestal level. **[–100]…[0]…[100]**		
[PEDESTAL OFFSET]	Sets the Rch, Gch, and Bch pedestal levels after adjusting the automatic black balance.		
	[ON]	Keeps each of the values set for [R PEDESTAL], [G PEDESTAL], and [B PEDESTAL].	
	[OFF]	Sets the pedestal level of Rch, Gch, and Bch to [0].	
[R FLARE]	Adjusts the Rch flare level. The adjusted value of this item is added to the flare adjusted value in the main menu → [MAINTENANCE] → [LENS FILE ADJ]. **[–100]…[0]…[100]**		
[G FLARE]	Adjusts the Gch flare level. The adjusted value of this item is added to the flare adjusted value in the main menu → [MAINTENANCE] → [LENS FILE ADJ]. **[–100]…[0]…[100]**		
[B FLARE]	Adjusts the Bch flare level. The adjusted value of this item is added to the flare adjusted value in the main menu → [MAINTENANCE] → [LENS FILE ADJ]. **[–100]…[0]…[100]**		

____ are factory settings.

[MATRIX]

Item	Description of settings	Remark
[[S] L MATRIX TABLE]	Selects the color correction table when the <GAIN> switch is on <L>. **[A], [B], [OFF]**	
[[S] M MATRIX TABLE]	Selects the color correction table when the <GAIN> switch is on <M>. **[A], [B], [OFF]**	
[[S] H MATRIX TABLE]	Selects the color correction table when the <GAIN> switch is on <H>. **[A], [B], [OFF]**	

____ are factory settings.

Item	Description of settings	Remark
[[S] MATRIX TABLE]	Selects the color collection table for the linear matrix. **[A], [B]**	
[MATRIX R-G]	Adjusts the linear matrix. (Red - Green) [A]: **[–63]…[30]…[63]** [B]: **[–63]…[24]…[63]**	
[MATRIX R-B]	Adjusts the linear matrix. (Red - Blue) [A]: **[–63]…[–5]…[63]** [B]: **[–63]…[10]…[63]**	
[MATRIX G-R]	Adjusts the linear matrix. (Green - Red) [A]: **[–63]…[–1]…[63]** [B]: **[–63]…[4]…[63]**	
[MATRIX G-B]	Adjusts the linear matrix. (Green - Blue) [A]: **[–63]…[3]…[63]** [B]: **[–63]…[12]…[63]**	
[MATRIX B-R]	Adjusts the linear matrix. (Blue - Red) [A]: **[–63]…[–1]…[63]** [B]: **[–63]…[5]…[63]**	
[MATRIX B-G]	Adjusts the linear matrix. (Blue - Green) [A]: **[–63]…[2]…[63]** [B]: **[–63]…[20]…[63]**	

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[COLOR CORRECTION]

Item	Description of settings	Remark
[[S] L COLOR CORRECT]	Switches [ON]/[OFF] of the 15-axis independent color correction where the <GAIN> switch is on <L>. **[ON], [OFF]**	
[[S] M COLOR CORRECT]	Switches [ON]/[OFF] of the 15-axis independent color correction where the <GAIN> switch is on <M>. **[ON], [OFF]**	
[[S] H COLOR CORRECT]	Switches [ON]/[OFF] of the 15-axis independent color correction where the <GAIN> switch is on <H>. **[ON], [OFF]**	
[R (SAT)]	Corrects red color saturation. **[–63]…[34]…[63]**	
[R-R-Mg (SAT)]	Corrects the color saturation between red and “colors between red and magenta”. **[–63]…[22]…[63]**	
[R-Mg (SAT)]	Corrects the color saturation between red and magenta. **[–63]…[20]…[63]**	
[Mg (SAT)]	Corrects magenta color saturation. **[–63]…[6]…[63]**	
[Mg-B (SAT)]	Corrects the color saturation between magenta and blue. **[–63]…[5]…[63]**	
[B (SAT)]	Corrects blue color saturation. **[–63]…[0]…[63]**	
[B-Cy (SAT)]	Corrects the color saturation between blue and cyan. **[–63]…[–3]…[63]**	
[Cy (SAT)]	Corrects cyan color saturation. **[–63]…[–5]…[63]**	
[Cy-G (SAT)]	Corrects the color saturation between cyan and green. **[–63]…[0]…[63]**	
[G (SAT)]	Corrects green color saturation. **[–63]…[6]…[63]**	
[G-Yl (SAT)]	Corrects the color saturation between green and yellow. **[–63]…[–2]…[63]**	
[Yl (SAT)]	Corrects yellow color saturation. **[–63]…[14]…[63]**	
[Yl-Yl-R (SAT)]	Corrects the color saturation between yellow and “colors between yellow and red”. **[–63]…[25]…[63]**	
[Yl-R (SAT)]	Corrects the color saturation between yellow and red. **[–63]…[28]…[63]**	
[Yl-R-R (SAT)]	Corrects the color saturation between “colors between yellow and red” and red. **[–63]…[43]…[63]**	
[R (PHASE)]	Corrects the red hue. **[–63]…[0]…[63]**	
[R-R-Mg (PHASE)]	Corrects the hue between red and “colors between red and magenta”. **[–63]…[10]…[63]**	

____ are factory settings.

Item	Description of settings	Remark
[R-Mg (PHASE)]	Corrects the hue between red and magenta. **[–63]…[5]…[63]**	
[Mg (PHASE)]	Corrects the magenta hue. **[–63]…[3]…[63]**	
[Mg-B (PHASE)]	Corrects the hue between magenta and blue. **[–63]…[4]…[63]**	
[B (PHASE)]	Corrects the blue hue. **[–63]…[0]…[63]**	
[B-Cy (PHASE)]	Corrects the hue between blue and cyan. **[–63]…[0]…[63]**	
[Cy (PHASE)]	Corrects the cyan hue. **[–63]…[12]…[63]**	
[Cy-G (PHASE)]	Corrects the hue between cyan and green. **[–63]…[15]…[63]**	
[G (PHASE)]	Corrects the green hue. **[–63]…[10]…[63]**	
[G-Yl (PHASE)]	Corrects the hue between green and yellow. **[–63]…[10]…[63]**	
[Yl (PHASE)]	Corrects the yellow hue. **[–63]…[6]…[63]**	
[Yl-Yl-R (PHASE)]	Corrects the hue between yellow and “colors between yellow and red”. **[–63]…[22]…[63]**	
[Yl-R (PHASE)]	Corrects the hue between yellow and red. **[–63]…[7]…[63]**	
[Yl-R-R (PHASE)]	Corrects the hue between “colors between yellow and red” and red. **[–63]…[13]…[63]**	

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[LOW SETTING]

Item	Description of settings		Remark
[[S] MASTER GAIN]	Selects the master gain. **[–6dB], [–3dB], [0dB], [3dB], [6dB], [9dB], [12dB], [15dB], [18dB], [21dB], [24dB], [27dB], [30dB]**		• [–6dB] in [[S] MASTER GAIN] cannot be selected when [NORMAL] is set in main menu → [PAINT] → [[S] CAMERA SETTING] → [SHOOTING MODE]. • A coloration phenomenon may occur in videos of high-brightness areas if shooting was done with the master gain set to [–6dB] or [–3dB]. After switching the <OUTPUT>/<AUTO KNEE> selection switch to <CAM>/<OFF> and setting [ON] in the main menu → [PAINT] → [KNEE/LEVEL] → [[S] MANUAL KNEE], you can reduce the coloration phenomenon by changing the following menu items: - Reduce the [KNEE MASTER SLOPE] value of [KNEE/LEVEL] when [HD], [SD], [FILMLIKE1], [FILMLIKE2], or [FILMLIKE3] is selected in the main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL]. - Reduce the [F-REC DYNAMIC LVL] value of [GAMMA] when [FILM-REC] is selected in main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL]. - Reduce the [V-REC KNEE SLOPE] value of [GAMMA] when [VIDEO-REC] is selected in the main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL].
[H.DTL LEVEL]	Sets the horizontal detail correction level. **[0]…[12]…[63]**		
[V.DTL LEVEL]	Sets the vertical detail correction level. **[0]…[15]…[31]**		
[DTL CORING]	Sets the detail noise removal level. **[0]…[1]…[60]**		
[H.DTL FREQ.]	Selects the horizontal detail frequency. **[0]…[18]…[31]**		
[LEVEL DEPEND.]	Sets [LEVEL DEPEND.]. Compresses the details of dark areas when Y detail is emphasized. Details of bright areas are also compressed if the value is large. **[0], [1]…[5]**		
[MASTER GAMMA]	Sets the master gamma in 0.01 steps. **[0.30]…[0.45]…[0.75]**		
[BLACK GAMMA]	Sets the gamma curves of dark areas.		
	[–8]…[–1]	Compresses the dark areas.	
	[OFF]	Standard state	
	[1]…[8]	Expands the dark areas.	
[B. GAMMA RANGE]	Sets the maximum level of compression/expansion.		
	[1]	About 20%	
	[2]	About 30%	
	[3]	About 40%	
[[S] MATRIX TABLE]	Selects the color collection table for the linear matrix. **[A], [B], [OFF]**		
[[S] COLOR CORRECT]	Switches the 15-axis independent color correction on/off. **[ON], [OFF]**		

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[MID SETTING]

Item	Description of settings		Remark
[[S] MASTER GAIN]	Selects the master gain. **[–6dB], [–3dB], [0dB], [3dB], [6dB], [9dB], [12dB], [15dB]. [18dB], [21dB], [24dB], [27dB], [30dB]**		• [–6dB] in [[S] MASTER GAIN] cannot be selected when [NORMAL] is set in main menu → [PAINT] → [[S] CAMERA SETTING] → [SHOOTING MODE].
[H.DTL LEVEL]	Sets the horizontal detail correction level. **[0]…[8]…[63]**		
[V.DTL LEVEL]	Sets the vertical detail correction level. **[0]…[12]…[31]**		
[DTL CORING]	Sets the detail noise removal level. **[0]…[8]…[60]**		
[H.DTL FREQ.]	Selects the horizontal detail frequency. **[0]…[18]…[31]**		
[LEVEL DEPEND.]	Sets [LEVEL DEPEND.]. Compresses the details of dark areas when Y detail is emphasized. Details of bright areas are also compressed if the value is large. **[0], [1]…[5]**		
[MASTER GAMMA]	Sets the master gamma in 0.01 steps. **[0.30]…[0.45]…[0.75]**		
[BLACK GAMMA]	Sets the gamma curves of dark areas.		
	[–8]…[–1]	Compresses the dark areas.	
	[OFF]	Standard state	
	[1]…[8]	Expands the dark areas.	
[B. GAMMA RANGE]	Sets the maximum level of compression/expansion.		
	[1]	About 20%	
	[2]	About 30%	
	[3]	About 40%	
[[S] MATRIX TABLE]	Selects the color collection table for the linear matrix. **[A], [B], [OFF]**		
[[S] COLOR CORRECT]	Switches the 15-axis independent color correction on/off. **[ON], [OFF]**		

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[HIGH SETTING]

Item	Description of settings		Remark
[[S] MASTER GAIN]	Selects the master gain. **[–6dB], [–3dB], [0dB], [3dB], [6dB], [9dB], [12dB], [15dB], [18dB], [21dB], [24dB], [27dB], [30dB]**		• [–6dB] in [[S] MASTER GAIN] cannot be selected when [NORMAL] is set in main menu → [PAINT] → [[S] CAMERA SETTING] → [SHOOTING MODE].
[H.DTL LEVEL]	Sets the horizontal detail correction level. **[0]…[6]…[63]**		
[V.DTL LEVEL]	Sets the vertical detail correction level. **[0]…[10]…[31]**		
[DTL CORING]	Sets the detail noise removal level. **[0]…[12]…[60]**		
[H.DTL FREQ.]	Selects the horizontal detail frequency. **[0]…[18]…[31]**		
[LEVEL DEPEND.]	Sets the [LEVEL DEPEND.]. Compresses the details of dark areas when Y detail is emphasized. Details of bright areas are also compressed if the value is large. **[0], [1]…[5]**		
[MASTER GAMMA]	Sets the master gamma in 0.01 steps. **[0.30]…[0.55]…[0.75]**		
[BLACK GAMMA]	Sets the gamma curves of dark areas.		
	[–8]…[–1]	Compresses the dark areas.	
	[OFF]	Standard state	
	[1]…[8]	Expands the dark areas.	
[B. GAMMA RANGE]	Sets the maximum level of compression/expansion.		
	[1]	About 20%	
	[2]	About 30%	
	[3]	About 40%	
[[S] MATRIX TABLE]	Selects the color collection table for the linear matrix. **[A], [B], [OFF]**		
[[S] COLOR CORRECT]	Switches the 15-axis independent color correction on/off. **[ON], [OFF]**		

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[ADDITIONAL DTL]

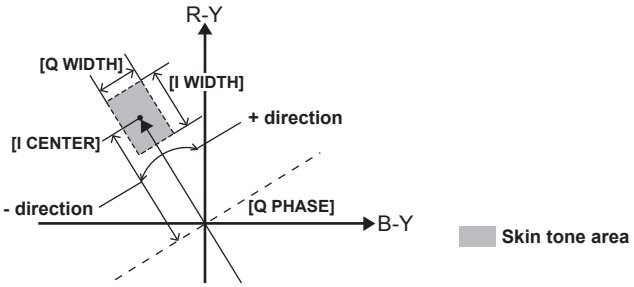
Item	Description of settings	Remark
[KNEE APE LVL]	Changes the detail level of high-brightness areas. **[OFF], [1]…[2]…[5]**	
[DTL GAIN(+)]	Changes the level of + (upper) direction of detail. **[–31]…[0]…[31]**	
[DTL GAIN(–)]	Changes the level of – (lower) direction of detail. **[–31]…[0]…[31]**	
[DTL CLIP]	Sets the level at which detail signals will be clipped. **[0]…[63]**	
[DTL SOURCE]	Sets the ratio of RGB signal components that will create the detail. **[(R+G)/2], [(G+B)/2], [(2G+R+B)/4], [(3G+R)/4], [R], [G]**	
[MASTER DTL]	Changes the master detail level. **[–31]…[0]…[31]**	

____ are factory settings.

[SKIN TONE DTL]

Item	Description of settings	Remark
[[S] SKIN TONE DTL]	Selects the skin tone table that will display the skin tone detail. Create the skin tone table with [DETECT TABLE]. You can shoot smoother skin tones by displaying skin tone detail. Select one, two, or three skin tones from the [A], [B], and [C] tables. **[A], [B], [C], [AB], [AC], [BC], [ABC], [OFF]**	• [SKIN TONE DTL] works independently from the details set in each item of [LOW SETTING], [MID SETTING], [HIGH SETTING], [ADDITIONAL DTL], and [[S] CAMERA SETTING].
[[S] ZEBRA VF]	Set to display a zebra pattern in the skin tone area displayed in the viewfinder screen. The zebra pattern is displayed when this item is set to [ON] and [SKIN TONE DTL] is open. The zebra pattern displays the area selected in [SKIN TONE DTL]. **[ON], [OFF]**	
[[S] ZEBRA SDI OUT1]	Set whether to display skin tone zebra in the SDI OUT1 signal. The zebra pattern is displayed when this item is set to [ON] and [SKIN TONE DTL] is open. The zebra pattern displays the area selected in [SKIN TONE DTL]. **[ON], [OFF]**	
[[S] ZEBRA MONI]	Set whether to display skin tone zebra in the monitor output (SDI OUT2, HDMI OUT, VIDEO OUT) signal. The zebra pattern is displayed when this item is set to [ON] and [SKIN TONE DTL] is open. The zebra pattern displays the area selected in [SKIN TONE DTL]. **[ON], [OFF]**	
[DETECT TABLE]	Selects the skin tone table of the subject that displays skin tone detail. **[A], [B], [C]**	
[SKIN TONE GET]	Obtains the color information of [A], [B], or [C] selected in [DETECT TABLE] from near the center marker. If executed, data from [I CENTER] to [Q PHASE] are automatically obtained. The obtained data becomes the table data of [A], [B], or [C] selected in [DETECT TABLE]. Multiple color information for [A], [B], and [C] cannot be obtained simultaneously.	
[SKIN DTL EFFECT]	Sets the effective level of the skin tone detail. **[0]…[16]…[31]**	
[I CENTER]	Sets the center position of the upper I axis (setting the area that displays skin tone). **[0]…[35]…[255]**	
[I WIDTH]	Sets the width of the area that displays the skin tone of the upper I axis that focus on [I CENTER]. **[0]…[55]…[255]**	
[Q WIDTH]	Sets the width of the area that displays the skin tone of the upper Q axis that focus on [I CENTER]. **[0]…[10]…[90]**	
[Q PHASE]	Sets the phase of the area that displays the skin tone regarding to the Q-axis. **[–180]…[0]…[179]**	

____ are factory settings.



- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

[KNEE/LEVEL]

Item	Description of settings	Remark
[MASTER PED]	Sets the master pedestal. **[–200]…[16]…[200]**	
[[S] MANUAL KNEE]	Sets the mode when the <OUTPUT>/<AUTO KNEE> switch is <OFF>. This enables the [KNEE MASTER POINT]/[KNEE MASTER SLOPE] setting value when the switch is [ON]. **[ON], [OFF]**	
[KNEE MASTER POINT]	Sets the knee point position in 0.5% steps. **[70.0%]…[93.0%]…[107.0%]**	• The setting becomes invalid when [FILM-REC] or [VIDEO-REC] is selected in the main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL].
[KNEE MASTER SLOPE]	Sets the knee inclination. **[0]…[85]…[99]**	• The setting becomes invalid when [FILM-REC] or [VIDEO-REC] is selected in the main menu → [PAINT] → [GAMMA] → [GAMMA MODE SEL].
[[S] WHITE CLIP]	Turns the white clip function [ON]/[OFF]. This enables the [WHITE CLIP LVL] setting value when the function is [ON]. **[ON], [OFF]**	
[WHITE CLIP LVL]	Sets the white clip level. **[90%]…[109%]**	
[A.KNEE POINT]	Sets the auto knee point position in 1% steps. This is enabled when the <OUTPUT>/<AUTO KNEE> switch is <CAM>/<ON>. **[80%]…[90%]…[107%]**	
[A.KNEE LVL]	Sets the auto knee level. **[100]…[107]…[109]**	
[A.KNEE RESPONSE]	Sets the auto knee response speed. The smaller the setting value, the faster the response speed is. **[1]…[4]…[8]**	
[CHROMA LEVEL]	Sets the chroma level of P_R and P_B signals. When this is set to [OFF], the color components of the video signal are removed. **[OFF], [–99%]…[0%]…[40%]**	
[DRS MODE]	Sets the effectiveness of DRS color preservation.	
	[MODE1] Sets the hue of high-brightness areas to its natural state.	
	[MODE2] Makes the hue of high-brightness areas more vivid.	
[DRS EFFECT DEPTH]	Sets the compression level for the high-brightness areas of DRS. The higher the value, the higher the compression level of high-brightness areas becomes. **[1], [2], [3]**	
[[S] HI-COLOR SW]	Turns the mode that expands the color dynamic range [ON]/[OFF]. **[ON], [OFF]**	
[HI-COLOR LVL]	Selects the level of the mode that expands the color dynamic range. **[1]…[32]**	

____ are factory settings.

- When saving or reading setup files from an SD memory card, you can save items with an [S] and items without an [S] separately. Items with an [S] in front of the item name are the targets for [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT]. Items without an [S] are targets for [PAINT(LEVEL)].

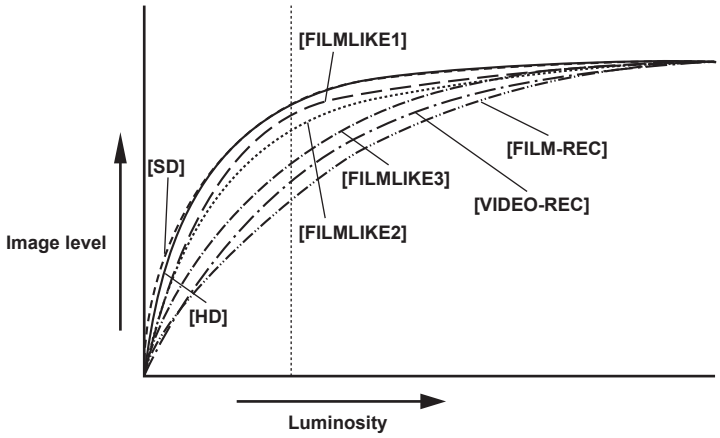
[GAMMA]

Item	Description of settings	Remark
[MASTER GAMMA]	Configure master gamma settings in 0.01 steps. **[0.30]…[0.45]…[0.75]**	
[R GAMMA]	Sets the gamma of Rch. **[–15]…[0]…[15]**	
[B GAMMA]	Sets the gamma of Bch. **[–15]…[0]…[15]**	

____ are factory settings.

Item	Description of settings		Remark
[GAMMA MODE SEL]	Selects the gamma curve.		• When [FILMLIKE3] is used, it is recommended to configure the following settings at the main menu → [PAINT] → [KNEE/LEVEL]. - [[S] MANUAL KNEE]: [ON] - [KNEE MASTER POINT]: [85.0%] - [KNEE MASTER SLOPE]: [50] • If set [FILM-REC] or [VIDEO-REC], auto knee is disabled. • Auto knee is disabled if the remote control unit (AJ-RC10G) is connected, but when the AJ-RC10G <A.KNEE ON> button is pressed, the LED of <A.KNEE ON> button lights.
	[HD]	The video gamma feature for HD (High Definition).	
	[SD]	Increases gain in darker areas more than HD gamma.	
	[FILMLIKE1]	Feature that reproduces more highlight areas compared to HD gamma.	
	[FILMLIKE2]	Feature that reproduces more highlight areas compared to [FILMLIKE1].	
	[FILMLIKE3]	Feature that reproduces more highlight areas compared to [FILMLIKE2].	
	[FILM-REC]	The cine-like gamma feature for film.	
	[VIDEO-REC]	The cine-like gamma feature for video.	
[F-REC DYNAMIC LVL]	When [FILM-REC] is selected in [GAMMA MODE SEL], dynamic range is set. If an item other than [FILM-REC] is selected, no settings are changed. **[200%], [300%], [400%], [500%], [600%]**		
[F-REC BLACK STR LVL]	When [FILM-REC] is selected in [GAMMA MODE SEL], black stretch is set. If an item other than [FILM-REC] is selected, no settings are changed. **[0%]…[30%]**		
[V-REC KNEE SLOPE]	When [VIDEO-REC] is selected in [GAMMA MODE SEL], knee slope is set. If an item other than [VIDEO-REC] is selected, no settings are changed. **[150%], [200%], [250%], [300%], [350%], [400%], [450%], [500%]**		
[V-REC KNEE POINT]	When [VIDEO-REC] is selected in [GAMMA MODE SEL], knee point is set. If an item other than [VIDEO-REC] is selected, no settings are changed. **[30%]…[107%]**		

____ are factory settings.



[[S] CAMERA SETTING]

Item	Description of settings		Remark
[SHOOTING MODE]	Selects the shooting mode according to the shooting environment.		• If [NORMAL] is selected, [–6dB] cannot be assigned to <LOW>/<MID>/<HIGH> on the <GAIN> switch.
	[NORMAL]	Selects normal sensitivity. (Applies during shooting in normal brightness.)	
	[HIGH SENS.]	Selects high-sensitivity. (Appropriate when shooting in a dark environment.) [H.SENS.] is displayed on the viewfinder screen.	
[DETAIL]	Switches the detail signal [ON]/[OFF]. **[ON], [OFF]**		
[2D LPF]	Sets a 2D low-pass filter to reduce cross colors.		• Operates during 480/59.94i only.
	[ON]	Reduces cross colors.	
	[OFF]	Does not reduce cross colors.	
[GAMMA]	Enables/disables gamma correction. **[ON], [OFF]**		
[TEST SAW]	Enables/disables the test signal. **[ON], [OFF]**		
[FLARE]	Enables/disables flare correction. **[ON], [OFF]**		
[H-F COMPE.]	Enables/disables aperture correction. **[ON], [OFF]**		

____ are factory settings.

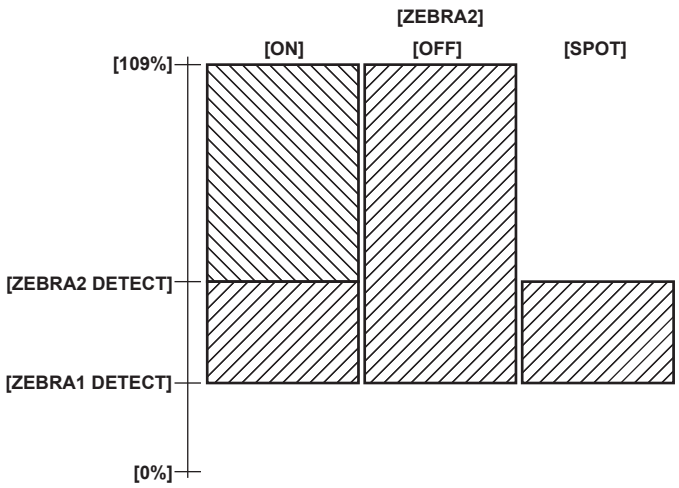
• All [[S] CAMERA SETTING] items are targets of [PAINT([S]SELECT)] in the main menu → [FILE] → [SETUP DATA SELECT].

[VF]

[VF DISPLAY]

Item	Description of settings		Remark
[VF/LCD CHAR]	Selects whether to display a character on the image of the LCD monitor and viewfinder.		
	[ON]	Displays a character on both the viewfinder and LCD monitor.	
	[VF-OFF]	Does not superimpose on the viewfinder, and displays on the LCD monitor.	
	[LCD-OFF]	Does not superimpose on the LCD monitor, and displays on the viewfinder.	
[VF MODE]	Selects a viewfinder image.		• This item is enabled when [CAM] is set in the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL]. When [SDI] is set, playback images are output in the playback mode regardless of this setting.
	[MEM]	In playback mode, these are playback images.	
	[CAM]	Always camera images.	
[VF COLOR]	Selects whether to display viewfinder images in color or in black and white.		
	[ON]	Displays in color.	
	[OFF]	Displays in black and white (playback images, thumbnail screens and menu displays remain in color).	
[DISP CONDITION]	Selects the status display method.		
	[NORMAL]	Status is always displayed.	
	[HOLD]	Normally, status is not displayed. Push the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch towards the <MCK/MCL> side to display when the mode check screen is displayed.	
[DISP MODE]	Shows/hides camera warning/notification displayed in the center of the viewfinder. For details, refer to “Display modes and setting changes/adjustment result messages” (page 79). **[1], [2], [3]**		
[VF OUT]	Selects the image signal displayed on the viewfinder screen.		
	[Y]	Luminosity signal	
	[NAM]	Outputs the [R], [G] or [B] signal with the largest level.	
	[R]	Rch signal	
	[G]	Gch signal	
	[B]	Bch signal	
[VF DTL]	Sets the detail level of the viewfinder screen. Further emphasizes details of the viewfinder signal. If [0], the detail is the same as this line. **[0]…[5]…[10]**		
[ZEBRA1 DETECT]	Sets the ZEBRA1 extraction level (IRE value). **[0%]…[70%]…[109%]**		
[ZEBRA2 DETECT]	Sets the ZEBRA2 extraction level (IRE value). **[0%]…[85%]…[109%]**		
[ZEBRA2]	Switches [ZEBRA2] [ON]/[OFF] and selects SPOT. **[ON], [SPOT], [OFF]**		
[LOW LIGHT LVL]	Sets how low the amount of light entering the camera must be to display [LOW LIGHT]. **[OFF], [10%], [15%], [20%], [25%], [30%], [35%]**		
[RC MENU DISP.]	Sets whether to display the menu on the viewfinder screen when the remote control unit or extension control unit is connected. **[ON], [OFF]**		
[MARKER/CHAR LVL]	Configures settings for the viewfinder marker and character luminosity. **[50%], [60%], [70%], [80%], [90%], [100%]**		
[SYNCHRO SCAN DISP]	Sets the unit in which synchro scan mode is displayed.		
	[sec]	Displays in time.	
	[deg]	Displays at shutter open angle.	

____ are factory settings.



[VF MARKER]

Item	Description of settings		Remark
[TABLE]	Selects the setting table of the marker select function. Check or set the details of [A]/[B] at subsequent settings. **[A], [B]**		
[CENTER MARK]	Controls the center mark.		
	[1]	+ (large)	
	[2]	Open center (large)	
	[3]	+ (small)	
	[4]	Open center (small)	
	[OFF]	Does not display.	
[SAFETY MARK]	Selects the type of frame for the safety zone marker.		
	[1]	Box	
	[2]	Corners	
	[OFF]	Does not display.	
[SAFETY AREA]	Sets the size of the safety zone marker. The constant ratio of length to width can be set in 1% increments. **[80%]…[90%]…[100%]**		
[FRAME MARK]	Selects frame marker [ON]/[OFF]. **[ON], [OFF]**		
[FRAME SIG]	Sets frame marker aspect ratio. The [VISTA] is 16:8,65 (1,85:1), and [CNSCO] is 16:6,81 (2,35:1). **[4:3], [13:9], [14:9], [VISTA], [CNSCO]**		
[FRAME LVL]	Sets the level of the outside of the frame marker.		
	[0]	Equivalent to signal off (blanking status).	
	[1]…[14]	Higher numbers indicate increased brightness.	
	[15]	Same brightness as center.	

____ are factory settings.

[VF USER BOX]

The user box can be displayed as a box-type cursor in any position.

Item	Description of settings	Remark
[USER BOX]	Sets whether to display the user box in the viewfinder. **[ON], [OFF]**	
[USER BOX WIDTH]	Sets the width of the user box. **[1]…[13]…[100]**	
[USER BOX HEIGHT]	Sets the height of the user box. **[1]…[13]…[100]**	
[USER BOX H POS]	Sets the horizontal position of the center of the user box. **[–50]…[0]…[50]**	
[USER BOX V POS]	Sets the vertical position of the center of the user box. **[–50]…[0]…[50]**	

____ are factory settings.

[VF INDICATOR]

Item	Description of settings		Remark
[EXTENDER]	Turns extender display [ON]/[OFF]. **[ON], [OFF]**		
[SHUTTER]	Turns shutter speed display [ON]/[OFF]. **[ON], [OFF]**		
[FILTER]	Turns filter no. display [ON]/[OFF]. **[ON], [OFF]**		
[WHITE]	Turns [AWB PRE]/[A]/[B] display [ON]/[OFF]. **[ON], [OFF]**		
[GAIN]	Turns the currently selected gain, [S.GAIN], and [DS.GAIN] displays [ON]/[OFF]. **[ON], [OFF]**		
[IRIS]	Selects displays of super iris and super black operation status, and iris value.		• Coordinates iris value display and iris override display. When iris override is changed, it is displayed for three seconds even if [OFF] is set.
	[IRIS]	Only the iris value is displayed.	
	[S+IRIS]	All are displayed.	
	[S]	Displays super iris and super black operation status.	
	[OFF]	Does not display.	
[CAMERA ID]	Sets whether to record camera ID.		
	[BAR]	Camera ID is recorded when color bar signals are recorded.	
	[OFF]	Does not record.	
[ID POSITION]	Sets the location to display camera ID.		
	[UPPER R]	Upper right	
	[UPPER L]	Upper left	
	[LOWER R]	Lower right	
	[LOWER L]	Lower left	
[DATE/TIME]	Selects whether year/month/day and hour/minute/second are displayed simultaneously when the camera ID is displayed. **[ON], [OFF]**		
[ZOOM/FOCUS]	Selects the unit of zoom and focus values.		• [mm/m] or [mm/feet] is displayed only when a serial lens is attached.
	[NUMBER]	Zoom and focus both display position values from [0] to [99].	
	[mm/m]	Zoom is displayed in units of millimeters, and focus in units of meters.	
	[mm/feet]	Zoom is displayed in units of millimeters, and focus in units of feet.	
	[OFF]	Neither zoom nor focus is displayed.	
[SYSTEM MODE]	Turns system mode display [ON]/[OFF]. **[ON], [OFF]**		
[REC FORMAT]	Turns recording format display [ON]/[OFF]. **[ON], [OFF]**		
[CAMERA MODE]	Turns camera mode display [ON]/[OFF]. **[ON], [OFF]**		
[COLOR TEMP]	Turns color temperature display [ON]/[OFF]. **[ON], [OFF]**		
[CAC]	Turns chromatic aberration compensation display [ON]/[OFF]. **[ON], [OFF]**		
[GAMMA MODE]	Turns gamma curve display [ON]/[OFF]. **[ON], [OFF]**		
[DRS]	Turns display of [DRS], which indicates that dynamic range stretcher function is operating, [ON]/[OFF]. **[ON], [OFF]**		
[FBC]	Turns display of [FBC], which indicates that flash band compensation function is operating, [ON]/[OFF]. **[ON], [OFF]**		
[FBC WARNING DISP]	Sets the warning display for flash band compensation.		
	[BOTH]	Displays the warning for both [FBC OFF] and [SHUTTER].	
	[1[FBC OFF]]	Displays the warning when flash band is detected while the flash band compensation function is not active.	
	[2[SHUTTER]]	Displays the warning when the flash band compensation function and shutter are both set to [ON].	
	[OFF]	Disables the warning display.	
[SHOOTING MODE]	Turns the display of [H.SENS.] [ON]/[OFF], which indicates that the main menu → [PAINT] → [[S] CAMERA SETTING] → [SHOOTING MODE] is set to [HIGH SENS.]. **[ON], [OFF]**		
[FOCUS BAR]	Turns the function that displays the degree of focus at bar size [ON]/[OFF]. **[ON], [OFF]**		
[P2CARD REMAIN]	Turns display of the remaining recording capacity for the P2 card [ON]/[OFF]. **[ON], [OFF]**		

____ are factory settings.

Item	Description of settings		Remark
[REC MEDIA]	Select [ON]/[OFF] of the display of selection status for recordable media (P2/microP2). **[ON]**, **[OFF]**		
[BATTERY]	Turns battery voltage display [ON]/[OFF]. **[ON]**, **[OFF]**		
[AUDIO LVL]	Turns audio level meter display [ON]/[OFF]. **[ON]**, **[OFF]**		
[TC ON COLOR BAR]	Selects whether to display time code when color bars are displayed. **[ON]**, **[OFF]**		
[TC]	Selects a time code to display.		
	[TCG]	Displays the time code generator value during recording.	
	[TCR]	Displays the time code reader value during playback.	
	[TCG/TCR]	Displays the time code generator value during recording and the time code reader value during playback.	
	[OFF]	Does not display the time code.	
[SYSTEM INFO]	Selects [ON]/[OFF] for displays of system information and warnings. **[ON]**, **[OFF]**		
[SAVE LED]	Sets operation of the [SAVE] lamp. (When the viewfinder has the [SAVE] lamp)		
	[P2CARD]	Links to a warning message and flashes when recording capacity on the P2 card becomes low.	
	[OFF]	Always off; do not use.	
[REC STATUS]	Selects whether to display [REC] in the viewfinder and the LCD monitor when the camera is recording.		• Even if this item is [OFF], if [CHAR] is selected in the main menu → [REC/PB] → [REC/PB SETUP] → [REC TALLY], [REC] is displayed.
	[ON]	Displays [REC].	
	[OFF]	Does not display [REC].	
[PROXY DISP]	Turns proxy information display [ON]/[OFF]. **[ON]**, **[OFF]** Error information is displayed even when the function is [OFF].		• This can also be set in the main menu → [REC/PB] → [PROXY SETUP] → [PROXY DISP].
[P-REC/i-REC]	Turns pre-recording information display [ON]/[OFF].		• Pre-recording mode switch information is displayed regardless of this menu setting.
	[ON]	Flashes [P-REC] or [REC] (access connection status).	
	[OFF]	Does not flash [P-REC].	

____ are factory settings.

[MODE CHECK IND]

Item	Description of settings	Remark
[STATUS]	Sets whether to display the status screen when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. **[ON]**, **[OFF]**	
[!LED]	Sets whether to display the reason that the viewfinder lamp is illuminated when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. The cause for the illuminated lamp is displayed by [!]. **[ON]**, **[OFF]**	
[FUNCTION]	Sets whether to display the [FUNCTION] screen when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. **[ON]**, **[OFF]**	
[AUDIO]	Sets whether to display the [AUDIO] screen when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. **[ON]**, **[OFF]**	
[CAC]	Sets whether to display the [CAC] screen when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. **[ON]**, **[OFF]**	
[USER SW STATUS]	Sets whether to display the function of each user switch or functions assigned to other switches when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed to the <MCK/MCL> side. **[ON]**, **[OFF]**	
[P.ON IND]	Sets whether to display the status screen immediately after the camera is turned on. **[ON]**, **[OFF]**	• Even if [ON] is selected in this item, when [STATUS] is [OFF], the status screen is not displayed immediately after the camera is turned on.

____ are factory settings.

[!LED]

Item	Description of settings	Remark
[GAIN(0dB)]	Sets whether to illuminate the [!] lamp on the viewfinder if the gain is other than 0 dB. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[DS.GAIN]	Sets whether to illuminate the [!] lamp on the viewfinder when [DS.GAIN] (incremental gain) is functioning. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[SHUTTER]	Sets whether to illuminate the [!] lamp on the viewfinder if the electronic shutter is working. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[WHITE PRESET]	Sets whether to illuminate the [!] lamp on the viewfinder if the <WHITE BAL> switch is on <PRST>. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[EXTENDER]	Sets whether to illuminate the [!] lamp on the viewfinder if the lens extender is working. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[B.GAMMA]	Sets whether to illuminate the [!] lamp on the viewfinder if the black gamma is working. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[MATRIX]	Sets whether to illuminate the [!] lamp on the viewfinder if the color correction table for linear matrix is selected. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[COLOR CORRECTION]	Sets whether to illuminate the [!] lamp on the viewfinder if the 15-axis independent color correction is selected. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[FILTER]	Sets whether to illuminate the [!] lamp on the viewfinder for any setting combination other than the <CC FILTER> dial set to<A> (<3200 K>) and the <ND FILTER> dial set to <1> (<CLEAR>). (When the viewfinder has the [!] lamp) **[ON], [OFF]**	
[ATW]	Sets whether to illuminate the [!] lamp on the viewfinder if automatic tracking white balance is working. (When the viewfinder has the [!] lamp) **[ON], [OFF]**	

____ are factory settings.

[CAMERA]

[CAMERA ID]

Item	Description of settings	Remark
[ID1]	Setting 1 of the camera ID to record to the color bars. Up to 10 characters may be used.	
[ID2]	Setting 2 of the camera ID to record to the color bars. Up to 10 characters may be used.	
[ID3]	Setting 3 of the camera ID to record to the color bars. Up to 10 characters may be used.	

____ are factory settings.

- To clear the setting, execute the main menu → [FILE] → [INITIALIZE] → [LOAD FACTORY DATA].

[SHUTTER SPEED]

Item	Description of settings	Remark
[SYNCHRO SCAN]	[SYNCHRO SCAN] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	
[POSITION1]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION1 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	
[POSITION2]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION2 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	
[POSITION3]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION3 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	
[POSITION4]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION4 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	

____ are factory settings.

Item	Description of settings	Remark
[POSITION5]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION5 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	
[POSITION6]	The speed set in the main menu → [CAMERA] → [SHUTTER SELECT] → [POSITION6 SEL] is assigned as the shutter speed selected by the <SHUTTER> switch. **[ON], [OFF]**	

____ are factory settings.

[SHUTTER SELECT]

Item	Description of settings	Remark
[POSITION1 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION1]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	
[POSITION2 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION2]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	
[POSITION3 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION3]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	
[POSITION4 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION4]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	
[POSITION5 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION5]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	
[POSITION6 SEL]	Sets the shutter speed in the main menu → [CAMERA] → [SHUTTER SPEED] → [POSITION6]. 50 Hz: **[1/60], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]** 59.94 Hz: **[1/100], [1/120], [1/250], [1/500], [1/1000], [1/2000], [HALF], [180.0deg], [172.8deg], [144.0deg], [120.0deg], [90.0deg], [45.0deg]**	

____ are factory settings.

- During remote control when connected to the remote control unit (AJ-RC10G) and extension control unit (AG-EC4G), the shutter settings will be the setting values saved in each unit.

[USER SW]

Item	Description of settings		Remark
[USER MAIN]	**(Select a function)**	Assigns the <USER MAIN> button. For selectable functions and an explanation of functions, refer to “Assigning functions to <USER> buttons” (page 56). [SLOT SEL] is assigned in the factory setting.	
	(Detection time)	Selects a response to accept when the <USER MAIN> button is pressed.	
	[NORMAL]	Accepts immediately when pressed.	
	[1sec]	Accepts when pressed and held down for approx. one second.	

____ are factory settings.

Item	Description of settings			Remark
[USER1]	**(Select a function)**	Assigns the <USER1> button. For selectable functions and an explanation of functions, refer to “Assigning functions to <USER> buttons” (page 56). [S.GAIN] is assigned in the factory setting.		
	(Detection time)	Selects a response to accept when the <USER1> button is pressed.		
		[NORMAL]	Accepts immediately when pressed.	
		[1sec]	Accepts when pressed and held down for approx. one second.	
[USER2]	**(Select a function)**	Assigns the <USER2> button. For selectable functions and an explanation of functions, refer to “Assigning functions to <USER> buttons” (page 56). [DS.GAIN] is assigned in the factory setting.		
	(Detection time)	Selects a response to accept when the <USER2> button is pressed.		
		[NORMAL]	Accepts immediately when pressed.	
		[1sec]	Accepts when pressed and held down for approx. one second.	
[SHOT MARK (U3)]	**(Select a function)**	Assigns the <SHOT MARKER> button. For selectable functions and an explanation of functions, refer to “Assigning functions to <USER> buttons” (page 56). [SHOT MARK] is assigned in the factory setting.		
	(Detection time)	Selects a response to accept when the <SHOT MARKER> button is pressed.		
		[NORMAL]	Accepts immediately when pressed.	
		[1sec]	Accepts when pressed and held down for approx. one second.	
[TEXT MEMO (U4)]	**(Select a function)**	Assigns the <TEXT MEMO> button. For selectable functions and an explanation of functions, refer to “Assigning functions to <USER> buttons” (page 56). [TEXT MEMO] is assigned in the factory setting.		
	(Detection time)	Selects a response to accept when the <TEXT MEMO> button is pressed.		
		[NORMAL]	Accepts immediately when pressed.	
		[1sec]	Accepts when pressed and held down for approx. one second.	

____ are factory settings.

[SW MODE]

Item	Description of settings		Remark
[RET SW]	Sets the function when the <RET> button on the lens is pressed.		• The return video is not displayed correctly when an image signal that differs from the video system of this camera. • When the main menu → [I/F SETUP] → [GENLOCK] → [GENLOCK] is set to [INT], return video images may sometimes be skewed slightly in the horizontal direction. • When switching between camera images and return video images, the image on the viewfinder and LCD monitor may be disrupted for an instant. This is not a malfunction.
	[INHIBIT]	The <RET> button function is disabled.	
	[REC CHECK]	Recording check function is enabled. Records can be checked of the last several seconds recorded.	
	[CAM RET]	Return video function is enabled. While the <RET> button is pressed, the signal supplied to the <SDI IN> terminal can be checked on the viewfinder and LCD monitor.	
	[ASSIST]	Turns the focus assist display [ON]/[OFF].	
	[D.ZOOM]	Digital zoom function is enabled. Digital zoom can be switched [ON]/[OFF].	
	[EVF CLR]	Selects whether to display video in the viewfinder in color or in black and white.	
	[TEXT MEMO]	Text memo function is enabled. A text memo can be recorded to the frame selected when the button is pressed.	
	[SHOT MARK]	Shot mark function is enabled. Press to add a shot mark, and press again to remove it.	
[S.BLK LVL]	Sets the super black level. **[–30], [–20], [–10], [OFF]**		
[AUTO KNEE SW]	Enables/disables auto knee function and DRS function.		
	[DRS]	When the <AUTO KNEE> switch is in the <ON> position, DRS function is enabled.	
	[ON]	When the <AUTO KNEE> switch is in the <ON> position, auto knee function is enabled.	
	[OFF]	Even if the <AUTO KNEE> switch is in the <ON> position, both auto knee function and DRS function are not enabled.	
[SHD,ABB SW CTL]	Sets whether to automatically adjust black shading when the <AUTO W/B BAL> switch is pressed and held down on the <ABB> side for two seconds or more. **[ON], [OFF]**		

____ are factory settings.

Item	Description of settings		Remark
[COLOR BARS]	Selects the color bar to use.		
	[SMPTE]	Uses SMPTE standard color bars.	
	[FULL BARS]	Uses full color bars.	
	[SPLIT]	Uses SPLIT color bars for SNG (Satellite News Gathering).	
	[ARIB]	Uses ARIB standard color bars.	
[WFM]	Selects the type of waveform to be displayed on the viewfinder screen or LCD monitor when the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) to which the waveform monitor function is assigned is pressed.		
	[WAVE]	Displays as a waveform.	
	[VECTOR]	Displays as a vector.	
	[WAVE/ VECTOR]	Each time the button is pressed, the display changes in order from no display → waveform display → vector display → no display.	
[WFM DISP]	Selects whether to display the waveform monitor on the viewfinder or on the LCD monitor.		
	[VF]	Displays on the viewfinder.	
	[LCD]	Displays on the LCD monitor.	
	[VF/LCD]	Displays on the viewfinder and the LCD monitor.	
[S.GAIN OFF]	Selects a method to release super gain mode.		
	[L/M/H]	Released by changing the <GAIN> switch or <S.GAIN> switch (<USER> button).	
	[S.GAIN]	Released by the <S.GAIN> switch (<USER> button) only.	
[DS.GAIN OFF]	Selects a method to release digital super gain mode (accumulated gain).		
	[L/M/H]	Released by changing the <GAIN> switch or <DS.GAIN> switch (<USER> button).	
	[DS.GAIN]	Released by the <DS.GAIN> switch (<USER> button) only.	
[D.ZOOM x2]	Selects whether to enable 2x when digital zoom is assigned to the <USER> button of the camera. **[ON], [OFF]**		
[D.ZOOM x3]	Selects whether to enable 3x when digital zoom is assigned to the <USER> button of the camera. **[ON], [OFF]**		
[D.ZOOM x4]	Selects whether to enable 4x when digital zoom is assigned to the <USER> button of the camera. **[ON], [OFF]**		
[FBC(SHUTTER ON)]	Selects whether to permit the operation of the flash band compensation (FBC) function when the <SHUTTER> switch is set to <ON>.		
	[ENABLE]	Permits the operation of the flash band compensation function with the <USER> button.	
	[DISABLE]	Forbids the operation of the flash band compensation function with the <USER> button.	
[RC CHECK SW]	Selects camera operation when the remote control unit (AJ-RC10G) <CHECK/5> button or the extension control unit <REC CHK> button is pressed.		• This item is scheduled to be supported in future upgrades.
	[REC CHECK]	Recording check function is enabled.	
	[PLAY]	Performs playback.	

____ are factory settings.

[WHITE BALANCE MODE]

Item	Description of settings		Remark
[FILTER INH]	Selects whether white balance memory (Ach or Bch) data is held or not held for each CC filter.		
	[ON]	Holds Ach and Bch memory data (2 memories), regardless of the CC filter.	
	[OFF]	Holds Ach and Bch memory data (8 memories), for each CC filter.	
[SHOCKLESS AWB]	When the position of the <WHITE BAL> switch is changed, set the time until when the white balance starts at the changed position.		
	[FAST]	Approx. 1 second	
	[NORMAL]	Approx. 2 seconds	
	[SLOW1]	Approx. 3 seconds	
	[SLOW2]	Approx. 10 seconds	
	[SLOW3]	Approx. 20 seconds	
	[OFF]	Moves instantly.	

____ are factory settings.

Item	Description of settings		Remark
[AWB AREA]	Switches the detection area that automatically adjusts white balance.		
	[25%]	Detects 25% of the area near screen center.	
	[50%]	Detects 50% of the area near screen center.	
	[90%]	Detects 90% of the screen area.	
[AWB B]	Sets the function assigned to the <WHITE BAL> switch <B>.		
	[MEM]	Records setting values when white balance is automatically adjusted, and operates using those values each time the <WHITE BAL> switch is moved to <B>.	
	[ATW]	Assigns the auto tracking white balance function.	
[ATW SPEED]	Switches the control speed of auto tracking white balance function. **[NORMAL], [SLOW], [FAST]**		
[TEMP PRE SEL SW]	Selects whether to set the preset color temperature to be variable or to switch between [3200K]/[5600K]. Right after the value is changed, the preset color temperature is set to [3200K] (when the filter <A> is set).		
	[VAR]	Switchable from [< 2300K] to [> 15000K].	
	[3.2K/5.6K]	Can be switched to [3200K] or [5600K].	
[COLOR TEMP PRE]	Sets color temperature when the <WHITE BAL> switch is in the <PRST> position. Sets the preset color temperatures selected in [TEMP PRE SEL SW]. When [VAR] is selected for [TEMP PRE SEL SW]: **[< 2300K]…[3200K]…[> 15000K]** When [3.2K/5.6K]is selected for [TEMP PRE SEL SW]:**[3200K], [5600K]**		• The range of color temperature that can be set differs depending on the position of the <CC FILTER> dial. When a high color temperature is set, sometimes the value does not change even if the color temperature is changed.
[AWB A TEMP]	Sets color temperature when the <WHITE BAL> switch is in the <A> position. If the white balance is automatically adjusted in the <A> position, the color temperature at that time is recorded to the <WHITE BAL> switch <A> position. **[< 2300K]…[3200K]…[> 15000K]**		
[AWB B TEMP]	Sets color temperature when the <WHITE BAL> switch is in the <B> position. If the white balance is automatically adjusted in the <B> position, the color temperature at that time is recorded to the <WHITE BAL> switch <B> position. **[< 2300K]…[3200K]…[> 15000K]**		

____ are factory settings.

[USER SW GAIN]

Item	Description of settings	Remark
[S.GAIN]	Selects the gain to enable to the <SUPER GAIN> switch (<USER> button). **[30dB], [36dB], [42dB]**	• Set to be valid/invalid per gain value. All gain values are valid in the factory settings.
[DS.GAIN]	Selects the accumulated gain to enable to the <DS.GAIN> switch (<USER> button). **[6dB], [10dB], [12dB], [15dB], [20dB], [24dB], [28dB], [34dB]**	• Set to be valid/invalid per gain value. The gain value of [20dB] or lower is valid in the factory setting. • When [DS.GAIN] function is operating, the shutter mode is [OFF].

____ are factory settings.

[LENS/IRIS]

Item	Description of settings		Remark
[A.IRIS LEVEL]	Sets the auto iris target value. **[0]…[50]…[100]**		
[A.IRIS PEAK/AVE]	Sets the ratio included in the peak for auto iris standard. Larger ratios correspond to a peak within the IRIS detection window, and smaller ones correspond to average values within the IRIS detection window. **[0]…[30]…[100]**		
[A.IRIS WINDOW]	Selects the auto iris detection window.		
	[NORM1]	Window that is near screen center.	
	[NORM2]	Window that is near screen bottom.	
	[CENTER]	Window that is a spot in the screen center.	
[S.IRIS LEVEL]	Sets the super iris (backlight compensation) target value. **[0]…[70]…[100]**		
[IRIS GAIN]	Selects the IRIS GAIN adjustment side. **[CAM], [LENS]**		• When using the lenses with extenders (such as x2 and x0.8) sold prior to the FUJINON DIGI POWER types, set to [LENS] with the extender inserted, and operate IRIS correction control. If set to [CAM], the IRIS control of the camera will no longer function correctly.
[IRIS GAIN VALUE]	Selects the [IRIS GAIN] adjustment value. When [CAM] is selected in [IRIS GAIN], this setting is enabled. **[1]…[10]…[20]**		

____ are factory settings.

[AGC]

Item	Description of settings	Remark
[AGC]	Selects [ON]/[OFF] for [AGC] function that automatically adjusts camera gain. **[ON], [OFF]**	
[AGC LIMIT]	Sets the maximum gain value during [AGC] operation. **[3dB], [6dB], [12dB], [18dB]**	
[AGC POINT]	Sets the F value to switch control to [AGC] from auto iris during [AGC] operation. **[F5.6], [F4], [F2.8]**	

____ are factory settings.

[CLIP]

[PROPERTY]

Item	Description of settings		Remark
[CLIP PROPERTY]	Detailed clip information is displayed on the screen. Items can be individually corrected. For details, refer to “Properties” (page 119).		
[CARD STATUS]	Displays the card status of a card slot. For details, refer to “Thumbnail screen” (page 108).		
[CPS PASSWORD]	Sets the CPS encrypted password of the microP2 memory card.		
	[LOAD]	Loads the CPS password from the SD memory card.	
	[SET]	Enter the CPS password.	
	[DELETE]	Deletes the password saved to the device, and disables encrypted formats.	
[SD CARD]	Displays SD memory card information.		
[REMAIN SETUP]	Sets which is displayed, remaining capacity or used capacity, when P2 card information is displayed.		
	[REMAIN]	Displays remaining capacity.	
	[USED]	Displays used capacity.	
[FREE CAP. OF PARTITION]	Displays available space in a partition.		• Displayed only in storage explorer when in USB storage mode.

____ are factory settings.

Item	Description of settings		Remark
[REPOSITION]	Selects a clip to be displayed on the thumbnail screen.		
	[ALL CLIP]	Displays all clips as thumbnails.	
	[SAME FORMAT CLIPS]	Displays only the clips recorded in the same format as the system format as thumbnails. Clips recorded in the same format means that each item of [LINE&FREQ], [REC FORMAT], and [AUDIO SMPL RES] in the main menu → [SYSTEM] → [SYSTEM MODE] matches the current setting status. Example) [1080-59.94i], [AVC-I100], [24BIT]	
	[SELECTED CLIPS]	Displays only the clips selected with the <SET> button as thumbnails. The thumbnails appear in selected order.	
	[MARKED CLIPS]	Displays only the clips with shot marks added as thumbnails.	
	[TEXT MEMO CLIPS]	Displayed only clips with text memo data attached as thumbnails.	
	[SLOT CLIPS]	Displays only the clips of the selected slot as thumbnails.	
[DELETE]	Deletes selected clips.		• To interrupt the deletion process, press the <SHIFT> button + <EXIT> button, or the <SET> button to cancel the operation. Once a clip is deleted, it cannot be restored even if the deletion process is aborted.
[FORMAT]	When the [FORMAT] menu is selected, format the P2 card of the specified slot.		• Data deleted as a result of formatting cannot be restored. Always check the data before formatting.
[FORMAT(STORAGE)]	Formats a storage device connected to the <USB3.0> terminal (host) using the specified system in USB storage mode. **[TYPE S], [FAT]**		• Data deleted as a result of formatting cannot be restored. Always check the data before formatting. • Enabled only for storage explorer, storage thumbnail.
[COPY]	Copies the selected clip to a P2 card in any card slot or a storage device.		• Do not turn power off or remove the card during copying. Doing so will result in defective clips. If a defective clip is created, delete the clip before copying it again. • Combine incomplete clips before copying.

____ are factory settings.

Item	Description of settings	Remark
[EXPORT]	When in USB storage mode, exports (writes) from the P2 card or SD memory card to a storage device by units of card. If [ALL SLOT] is selected, card data from both slots currently in use (slots 1 and 2 or slots 3 and 4) can be combined and exported.	• Enabled only in USB storage mode.
[IMPORT]	Imports (writes-back) clips from a storage device to a P2 card in units of card when in USB storage mode.	• Valid for type S storage only. • Only writes back to a card with a serial number matching the original card serial number. • Displayed only in storage explorer.
[REPAIR]	Repairs a clip displayed in the defective clip indicator (yellow) occurring as a result of sudden power loss during recording or other reasons.	• Repair may be impossible, depending on how it was damaged. When repair is impossible, a yellow indicator is displayed.
[RE-CONNECT]	If clips that were recorded over multiple P2 cards are not recognized as consecutive clips and the incomplete clip indicator [!] is displayed, use this function to restore the clips to the consecutive clips (the original combined clips).	• Incomplete clips are formed in the following cases: - When clips recorded to multiple P2 cards are copied separately to individual P2 cards. - When clips recorded to multiple cards are copied separately to individual storage device cards and then re-written to P2 cards. • Even if only some of the incomplete clips divided into 3 or more are linked, the incomplete clip indicator will stay on until all of the clips that comprise the original clips are linked.
[EXCH. THUMBNAIL]	Changes the clip thumbnail to an image with any text memo. This can be executed while the text memo clip is displayed.	
[EXPLORE]	Switches to the information display screens for storage when in USB storage mode.	• Enabled only in USB storage mode.
[AUTHENTICATE]	When this menu is selected from the card status screen, a software keyboard is displayed to enter the CPS password. If the password is entered and [OK] is selected, the CPS password is set to the camera. When the set CPS password is successfully authenticated, the message [AUTHENTICATED SUCCESSFULLY!] is displayed. When the set CPS password authentication fails, a warning message (page 196) is displayed.	
[CHANGE PARTITION NAME]	Sets and changes the storage partition name in USB storage mode.	• The initial value is the date and time that the partition was created. • Valid for type S storage only. • Displayed only in storage explorer.
[DELETE LAST PARTITION]	Deletes the last storage partition when in USB storage mode.	• Can only be deleted when the cursor is in the last partition. • Displayed only in storage explorer.
[DELETE FOLDER]	Delete folders in the storage device in the FAT format.	• Displayed only in storage explorer.

____ are factory settings.

[THUMBNAIL SETUP]

Item	Description of settings		Remark
[INDICATOR]	Selects an item to display and press the <SET> button. Checked items are displayed. When [ALL HIDE] is selected, other items cannot be selected.		• Defective clip indicator (yellow, red), unknown clip indicator, and incomplete clip indicator are always displayed, regardless of the settings.
	[ALL HIDE]	Hides all indicators.	
	[MARKER]	Displays the shot mark indicator.	
	[TEXT MEMO]	Displays the text memo indicator.	
	[WIDE]	Displays the wide indicator.	
	[PROXY]	Displays the proxy indicator.	
[DATA DISPLAY]	Selects the content to display in the time display area.		
	[TC]	Displays the time code.	
	[UB]	Displays the user bits.	
	[TIME]	Displays the record time.	
	[DATE]	Displays the record date.	
	[DATE TIME]	Displays the record date and time.	
	[CLIP NAME]	Displays clip names.	
	[USER CLIP NAME]	Displays a maximum of the first 15 letters (for an English language display) of a user clip name.	
	[SLOT]	Displays slot number.	
	[THUMBNAIL TC]	Displays the time code of the thumbnail position.	
[THUMBNAIL SIZE]	Sets the thumbnail size displayed in a thumbnail on the screen.		
	[SMALL]	Small (thumbnail display: with 4×3 and property display)	
	[MEDIUM]	Standard (thumbnail display: 4×3)	
	[LARGE]	Large (thumbnail display: 3×2)	

____ are factory settings.

Item	Description of settings		Remark
[PB POSITION]	Sets the playback start position during playback from the thumbnail screen.		
	[RESUME]	Plays back from the position that playback stopped.	
	[THUMBNAIL TC]	Plays back from the time code of the thumbnail position.	
	[START TC]	Plays back from the start time code (top of the clip).	
[PROPERTY DISP.]	Sets simple properties item displayed on the left of the thumbnail when [SMALL] is selected for [THUMBNAIL SIZE].		• A maximum of 6 items can be displayed at the same time. • When 6 items are already selected, all unchecked items cannot be selected. • You can change your item selection by unchecking selected items. • Items with underlines are selected in the factory settings.
	[USER CLIP NAME]	Displays user clip names.	
	[START TC]	Displays the start time code.	
	[REC DATE]	Displays the recording date.	
	[REC TIME]	Displays the record time.	
	[NUM. OF AUDIO CH]	Displays the number of audio channels.	
	[AUDIO RATE]	Displays the audio sampling rate.	
	[AUDIO BIT]	Displays the audio bitrate.	
	[CREATOR]	Displays the person who recorded the clip.	
	[SHOOTER]	Displays the videographer.	
	[PLACE NAME]	Displays the shooting location.	
	[PROGRAM NAME]	Displays the program name.	
	[SCENE NO.]	Displays scene number.	
	[TAKE NO.]	Displays take number.	
	[REPORTER]	Displays the reporter.	
	[PURPOSE]	Displays the purpose of shooting.	
	[OBJECT]	Displays the object of shooting.	
	[START UB]	Displays the start user bits.	
	[REC RATE]	Displays the recording frame rate.	
	[LAST UP DATE]	Displays the date of last update.	
	[LAST UP PERSON]	Displays the last person who updated.	
	[MANUFACTURER]	Displays the equipment manufacturer name.	
	[SERIAL NO.]	Displays the serial number.	
	[MODEL NAME]	Displays the model name.	
	[ALTITUDE]	Displays an altitude.	
	[LONGITUDE]	Displays a longitude.	
	[LATITUDE]	Displays a latitude.	
	[1ST TEXT MEMO]	Displays the first text memo content.	
	[THUMBNAIL OFFSET]	Displays the thumbnail recording position.	

____ are factory settings.

[STORAGE COPY SETUP]

Item	Description of settings		Remark
[VERIFY]	Sets whether to verify or not when exporting in USB storage mode.		• Valid for use in storing to type S format only.
	[ON]	Verifies.	
	[OFF]	Does not verify.	

____ are factory settings.

[REC/PB]

[REC FUNCTION]

Item	Description of settings		Remark
[RECORDING]	Select the recording format.		• Only [NORMAL] can be selected in the following cases: - When the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL] is set to other than [SDI]
	[NORMAL]	Performs standard recording.	
	[LOOP]	Performs loop recording.	

____ are factory settings.

Item	Description of settings		Remark
[HOLD]	Selects whether to hold [RECORDING] settings.		
	[ON]	Holds.	
	[OFF]	Does not hold. It will always be [NORMAL] the next time that power is turned on.	
[PRE REC]	Selects whether to perform pre-recording. Sets the time to perform continuous pre-recording when [ON] is selected.		• [ON] cannot be selected in the following cases: - When the main menu → [SYSTEM] → [SYSTEM MODE] → [LINE&FREQ] is set to [1080-59.94P] or [1080-50P] - When the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL] is set to [SDI] - When the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING] is set to other than [NORMAL]
	[ON]	Performs pre-recording.	
	[OFF]	Does not perform pre-recording.	
[PRE REC TIME]	Configures pre-recording settings. Sets a time that can be recorded by counting backward from the time that the <REC> button is pushed. Up to a maximum of 15 seconds can be selected in DVCPRO and DV modes, and up to 8 seconds in other modes. HD, DVCPRO50: **[0s]…[8s]** DV or DVCPRO: **[0s]…[8s]…[15s]**		

____ are factory settings.

[REC/PB SETUP]

Item	Description of settings		Remark
[REC MEDIA]	Selects the slot for the media to be recorded.		• Recording is not possible when a card is inserted into a slot that is not selected.
	[P2]	Uses P2 memory cards (slots 1 and 2).	
	[microP2]	Uses microP2 memory cards (slots 3 and 4).	
[FILE SPLIT]	Selects whether to divide the recording file in 4 GB units or one file when recording in the microP2 memory card (that exceeds 32 GB) in AVC-LongG format.		• If done in one file, that clip cannot be copied to a P2 memory card or 32 GB microP2 memory card, or copied or exported to storage.
	[ONE FILE]	Records in 1 file.	
	[SPLIT]	Divides in 4 GB units.	
[START TEXT MEMO]	Selects the function that automatically adds a text memo at recording start position each time recording is started.		• Text memos added when this item is [ON] indicate the recording start position. To record text memos as character information, refer to “Setting clip metadata” (page 116).
	[ON]	A text memo is added to each recording.	
	[OFF]	Does not add a text memo.	
[P.ON REC SLOT SEL]	Selects the slot order targeted for recording when power is turned on.		
	[HOLD]	Records from the recording slot used the last time power was turned off.	
	[SLOT 1/3]	Each time the power is turned on, this changes in order from slot 1 or 3 (slot selected in [REC MEDIA]) to the recording target card.	
[REC START]	Selects acceptance of the start of recording.		• If the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING] is set to other than [NORMAL], operation will be [NORMAL] even when this item is set to [ALL].
	[ALL]	Accepts start of recording during stop, during recording pause, and during playback.	
	[NORMAL]	Accepts start of recording during stop and during recording pause.	
[REC TALLY]	Selects the method to display recording status at the camera.		• If set [GREEN] or [CHAR], the viewfinder front tally lamp, back tally lamp and rear tally lamp do not light while this camera is recording.
	[RED]	The red tally lamp lights.	
	[GREEN]	The green tally lamp lights.	
	[CHAR]	The characters “REC” are displayed in the viewfinder.	
[ACCESS LED]	Selects whether to light the access LED of the P2 card.		
	[ON]	Lights.	
	[OFF]	Does not light.	
[SEEK POS SEL]	Selects the position to move when the <FF/REW> button is pressed while playback is paused.		
	[CLIP]	Top of the clip	
	[CLIP&TEXT MEMO]	Top of the clip and text memo location	

____ are factory settings.

[PROXY SETUP]

Item	Description of settings		Remark
[REC MEDIA]	Selects media for recording proxy data.		• In the following case, proxy data cannot be recorded even if [REC MEDIA] is set to [P2] or [P2&SD]. - When the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING] is set to other than [NORMAL]
	[P2]	Records proxy data to the P2 card.	
	[P2&SD]	Records proxy data to both the P2 card and SD memory card.	
	[OFF]	Does not record proxy data.	
[REC MODE (HD)]	Sets the recording mode of proxy data. (in the HD mode only) **[STD 2CH MP4], [LOW 2CH MOV], [HQ 2CH MOV], [HQ 4CH MOV], [SHQ 2CH MOV]**		
[TC SUPER]	Sets whether to superimpose time code display on the proxy data recorded images.		
	[UPPER]	Superimposes the time code display at the top of the recorded images.	
	[LOWER]	Superimposes the time code display at the bottom of the recorded images.	
	[OFF]	Does not superimpose time code on recorded images.	
[PROXY DISP]	Selects whether to display proxy data recorded information or messages in the viewfinder and LCD monitor.		• This can also be set in the main menu → [VF] → [VF INDICATOR] → [PROXY DISP].
	[ON]	Displays proxy recording information and SD memory card remaining capacity at the start of recording. Warning information is displayed at all times.	
	[OFF]	Displays proxy and SD memory card warning information for only three seconds when warning occurs.	

____ are factory settings.

[TC/UB]

Item	Description of settings		Remark
[UBG MODE]	Selects the user bits mode.		
	[USER]	Selects the user bits value set in the display window.	
	[TIME]	Selects the local time. (hh, mm, ss)	
	[DATE]	Selects the local date and time. (YY, MM, DD, hh)	
	[EXT]	Records the user bits values currently entered to the <TC IN> terminal.	
	[TCG]	The [TCG] value is entered to the user bits.	
	[FRAME RATE]	Selects camera imaging information (such as frame rate).	
	[REGEN]	Reads the value recorded to the card and continuously records that value.	
[VITC UBG MODE]	Selects the VITC user bits mode.		
	[USER/EXT]	If [UBG MODE] is operating in [EXT], that value is followed and when not [EXT], a user value set in [USER] is recorded.	
	[TIME]	Selects the local time. (hh, mm, ss)	
	[DATE]	Selects the local date and time. (YY, MM, DD, hh)	
	[TCG]	The time code generator value is entered to the user bits.	
	[FRAME RATE]	Selects camera imaging information (such as frame rate).	
	[REGEN]	Reads the value recorded to the card and continuously records that value.	
[DF MODE]	Sets drop frame mode/non-drop frame mode of the [CTL] and [TCG].		
	[DF]	Uses the drop frame mode.	
	[NDF]	Uses the non-drop frame mode.	
[TCG SET HOLD]	If the internal time code generator is set with the <TCG> switch before turning power off, switch [ON]/[OFF] for the function that recording starts from the preset value when turning on the power to start recording. **[ON], [OFF]**		
[FIRST REC TC]	Selects whether to regenerate the time code to the value on the P2 card at the first recording after power is turned on, a P2 card is inserted, or the P2 card targeted for recording is switched.		• Make sure the date and time are correctly set. For the setting method, refer to “Setting the date/time of the internal clock” (page 30).
	[PRESET]	Uses the internal time code of the camera.	
	[REGEN]	Regeneration is performed for the time code of the clip with the newest date and time of the clips recorded to the P2 card targeted for recording.	
[TC OUT]	Selects the time code output to the <TC OUT> terminal.		
	[TCG]	Outputs the time code generator value at all times.	
	[TCG/TCR]	Outputs the time code generator value during recording and the time code reader value during playback.	

____ are factory settings.

Item	Description of settings		Remark
[TC OUTPUT REF]	Sets the output delay of time code output from the <TC OUT> terminal. For details, refer to “Externally locking the time code” (page 65).		
	[TC IN]	Match to external time code input.	
	[VIDEO OUT]	Match to output images.	
[REC CHECK REGEN]	Selects whether to regenerate to the time code last recorded to the P2 card at the next recording when the <RET> button that assigns recording check function or the <USER> button is pressed.		
	[ON]	Regenerates.	
	[OFF]	Does not regenerate.	

____ are factory settings.

[REC METADATA]

Item	Description of settings		Remark
[LOAD]	Loads the metadata upload file saved to the SD memory card.		
[RECORD]	Sets whether to add loaded metadata at a recording.		
	[ON]	Adds.	
	[OFF]	Does not add.	
[USER CLIP NAME]	Sets data to be recorded to [USER CLIP NAME]. When [RECORD] is [ON]:		
	[TYPE1]	Records setting values of the loaded data.	
	[TYPE2]	Records loaded data and counter values.	
	When [RECORD] is [OFF]:		
	[TYPE1]	Records the same value as [GLOBAL CLIP ID].	
	[TYPE2]	Records the same value as [CLIP NAME].	
[INITIALIZE]	Deletes all loaded metadata and initializes.		
[PROPERTY]	Checks and corrects loaded metadata.		• This item is enabled while the thumbnail is displayed.
[LANGUAGE]	Sets the language used to display metadata. **[ENGLISH], [JAPANESE]**		• This items is displayed when [NTSC (J)] is selected in [OPTION MENU] → [AREA SETTING].

____ are factory settings.

[I/F SETUP]

[OUTPUT SEL]

Item	Description of settings		Remark
[OUTPUT ITEM]	Sets the character content to superimpose on the output signal of the <SDI OUT1> terminal and monitor output terminal (<SDI OUT2>, <HDMI OUT>, and <VIDEO OUT>).		• The time code display position moves up and down based on the camera ID position.
	[MENU ONLY]	Displays only on the menu. Normally, nothing is displayed.	
	[TC]	Displays the time code. (Menu is displayed on the menu)	
	[STATUS]	Displays all items that are the same as the character displayed on the viewfinder. (Menu is displayed on the menu)	
[SDI OUT1]	Turns <SDI OUT1> terminal output [ON]/[OFF].		
	[ON]	Performs output.	
	[OFF]	Stops output.	
[SDI OUT1 MODE]	Selects <SDI OUT1> terminal output signals.		
	[MEM]	In playback mode, these are playback images.	
	[CAM]	When the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL] is set to [CAM], output is always camera images.	
[SDI OUT1 CHAR]	Selects whether to superimpose characters on <SDI OUT1> terminal output images.		• The content of characters to superimpose is the same as the characters superimposed on images output from <SDI OUT2> and other terminals.
	[ON]	Superimposes.	
	[OFF]	Does not superimpose.	
[SDI OUT2]	Turns <SDI OUT2> terminal output [ON]/[OFF].		
	[ON]	Performs output.	
	[OFF]	Stops output.	
[VIDEO OUT]	Turns <VIDEO OUT> terminal output [ON]/[OFF].		
	[ON]	Performs output.	
	[OFF]	Stops output.	

____ are factory settings.

Item	Description of settings		Remark
[SDI2/HDMI OUT]	Selects the signal form to output to the monitor output terminal (<SDI OUT2> or <HDMI OUT>).		
	[SYSTEM MODE]	Outputs in the system mode signal format.	
	[DOWNCON]	Outputs the down converter signal.	
[1080P SDI2/HDMI OUT]	Selects whether to convert the output signal of the monitor output terminal (<SDI OUT2> or <HDMI OUT>) to 1080i when in 1080P mode.		• If the main menu → [I/F SETUP] → [OUTPUT SEL] → [SDI2/HDMI OUT] is set to [DOWNCON], the signal that was down-converted is output, regardless of these settings.
	[1080P]	Outputs as 1080P.	
	[1080i]	Converts to 1080i and outputs.	
[3G-SDI OUT]	Selects 1080P signals of the HD SDI output in 1080P mode.		
	[LEVEL-A]	Selects the LEVEL-A method.	
	[LEVEL-B]	Selects the LEVEL-B DL method.	
[MONITOR OUT MODE]	Selects the output signals of the monitor output terminal (<SDI OUT2>, <HDMI OUT> or <VIDEO OUT2>). Operates independently of the <SDI OUT1> terminal.		
	[MEM]	In playback mode, these are playback images.	
	[CAM]	When the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL] is [CAM], output is always camera images.	
[MONITOR OUT ZEBRA]	Selects whether the zebra pattern is superimposed over the output video signals from the monitor output terminals (<SDI OUT2>, <HDMI OUT>, and <VIDEO OUT>). (The remote VBS signal also interlocks.)		
	[ON]	Superimposes.	
	[OFF]	Does not superimpose.	
[SDI EDH]	Sets whether to add an error detection flag to SD SDI output. **[ON], [OFF]**		
[THUMBNAIL OUT]	Selects whether to output the thumbnail of a clip displayed on the LCD monitor to the <SDI OUT1> terminal, <SDI OUT2> terminal, <HDMI OUT> terminal, and <VIDEO OUT> terminal.		
	[ON]	Performs output.	
	[OFF]	Does not output.	

____ are factory settings.

[SDI OUT1 MARKER]

Item	Description of settings		Remark
[MARKER SW]	Switches the marker.		
	[ON]	Displays.	
	[OFF]	Does not display.	
[CENTER MARK]	Switches the center marker.		
	[1]	+ (large)	
	[2]	Open center (large)	
	[3]	+ (small)	
	[4]	Open center (small)	
	[OFF]	Does not display.	
[SAFETY MARK]	Selects the type of frame for the safety zone marker.		
	[1]	Box	
	[2]	Corners	
	[OFF]	Does not display.	
[SAFETY AREA]	Sets the size of the safety zone marker. The constant ratio of length to width can be set in 1% increments. **[80%]…[90%]…[100%]**		
[FRAME MARK]	Enables/disables frame marker. **[ON], [OFF]**		
[FRAME SIG]	Sets frame marker aspect ratio. **[4:3], [13:9], [14:9], [VISTA], [CNSCO]**		• [VISTA] is 16:8,65, and [CNSCO] is 16:6,81.
[USER BOX]	Sets whether to display the user box to the signal from the <SDI OUT1> terminal. **[ON], [OFF]**		
[USER BOX WIDTH]	Sets the width of the user box. **[1]…[13]…[100]**		
[USER BOX HEIGHT]	Sets the height of the user box. **[1]…[13]…[100]**		
[USER BOX H POS]	Sets the horizontal position of the center of the user box. **[–50]…[0]…[50]**		
[USER BOX V POS]	Sets the vertical position of the center of the user box. **[–50]…[0]…[50]**		

____ are factory settings.

[MONI OUT MARKER]

Item	Description of settings		Remark
[CENTER MARK]	Switches the center marker.		
	[1]	+ (large)	
	[2]	Open center (large)	
	[3]	+ (small)	
	[4]	Open center (small)	
	[OFF]	Does not display.	
[SAFETY MARK]	Selects the type of frame for the safety zone marker.		• If the main menu → [I/F SETUP] → [DOWNCON SETTING] → [DOWNCON MODE] is set to [SIDE CROP] or [LETTER BOX], the safety zone marker is not displayed to the down converter output signal in HD mode.
	[1]	Box	
	[2]	Corners	
	[OFF]	Does not display.	
[SAFETY AREA]	Sets the size of the safety zone marker. The constant ratio of length to width can be set in 1% increments. **[80%]…[90%]…[100%]**		
[FRAME MARK]	Enables/disables frame marker. **[ON], [OFF]**		
[FRAME SIG]	Sets frame marker aspect ratio. **[4:3], [13:9], [14:9], [VISTA], [CNSCO]**		• [VISTA] is 16:8,65, and [CNSCO] is 16:6,81.
[USER BOX]	Sets whether to display the user box to the signal from the monitor output terminal (<SDI OUT2>, <HDMI OUT>, or <VIDEO OUT>). **[ON], [OFF]**		• If the main menu → [I/F SETUP] → [DOWNCON SETTING] → [DOWNCON MODE] is set to [SIDE CROP] or [LETTER BOX], the user box is not displayed to the down converter output signal in HD mode.
[USER BOX WIDTH]	Sets the width of the user box. **[1]…[13]…[100]**		
[USER BOX HEIGHT]	Sets the height of the user box. **[1]…[13]…[100]**		
[USER BOX H POS]	Sets the horizontal position of the center of the user box. **[–50]…[0]…[50]**		
[USER BOX V POS]	Sets the vertical position of the center of the user box. **[–50]…[0]…[50]**		

____ are factory settings.

[DOWNCON SETTING]

Item	Description of settings		Remark
[DOWNCON MODE]	Sets the mode of the down converter output signal. **[SIDE CROP], [LETTER BOX], [SQUEEZE]**		• When [LETTER BOX] is selected, some parts of the top and bottom edges of the down converter output video may be distorted. This is not a malfunction.
[DETAIL]	Turns detail function for the down converter output signal [ON]/[OFF]. **[ON], [OFF]** The down converter output signal contains detail components set during HD signal processing. This setting superimposes the detail components exclusive to down converter output to that signal.		• Even if this setting is [OFF], the detail components set during HD signal processing cannot be disabled.
[H.DTL LEVEL]	Sets horizontal detail correction level for the down converter output signal. **[0]…[8]…[31]**		
[V.DTL LEVEL]	Sets vertical detail correction level for the down converter output signal. **[0]…[4]…[31]**		
[DTL CORING]	Sets the detail noise removal level. **[0], [1]…[15]**		
[H.DTL FREQ.]	Selects the horizontal detail frequency. **[2.5MHz], [3MHz], [3.5MHz], [4MHz], [4.5MHz]**		
[2D LPF]	Sets the filter.		
	[ON]	Reduces cross colors.	
	[OFF]	Does not reduce cross colors.	

____ are factory settings.

[GENLOCK]

Item	Description of settings		Remark
[GENLOCK]	Switches the synchronization signal of the camera signal.		• When the main menu → [SYSTEM] → [SYSTEM MODE] → [REC SIGNAL] is set to [SDI], the camera synchronizes to the reference signal input to the <SDI IN> terminal regardless of this setting.
	[INT]	Synchronizes to the internal standard signal independent of standard signals input to the <GENLOCK IN> terminal or <SDI IN> terminal.	
	[GL IN]	Synchronizes to the standard signal input to the <GENLOCK IN> terminal.	
	[SDI IN]	Synchronizes to the standard signal input to the <SDI IN> terminal.	
[GL PHASE]	Selects the output signal of phase to be locked to the signal input to the <GENLOCK IN> terminal. (at 1080/59.94i, 1080/50i only)		
	[HD SDI]	Locks the HD SDI output signal to generator lock input. The video start position of the down converter output signal lags by approx. 90 lines.	
	[COMPOSITE]	Locks the down converter output signal to generator lock input. The video start position of the HD SDI output signal advances by approx. 90 lines.	
[H PHASE COARSE]	Roughly adjusts to match horizontal synchronization phase when building a system. **[–100]…[0]…[100]**		
[H PHASE FINE]	Minutely adjusts to match horizontal synchronization phase when building a system. **[–100]…[0]…[100]**		

____ are factory settings.

[MIC/AUDIO]

Item	Description of settings		Remark
[VR SELECT]	Selects which channel to assign to the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4> and <F.AUDIO LEVEL> dials.		• When [CH3/4] is selected in [VR SELECT], channels are also replaced for the following six items. - [FRONT VR CH1] → [FRONT VR CH3] - [FRONT VR CH2] → [FRONT VR CH4] - [AUTO LVL CH3]→[AUTO LVL CH1] - [AUTO LVL CH4]→[AUTO LVL CH2] - [LVL CONTROL CH3] → [LVL CONTROL CH1] - [LVL CONTROL CH4] → [LVL CONTROL CH2] For details, refer to “Adjusting the recording levels” (page 58).
	[CH1/2]	Assigns level adjustment of channels 1/2. Channels 3/4 can be automatically adjusted or adjusted by [LVL CONTROL CH3] or [LVL CONTROL CH4].	
	[CH3/4]	Assigns level adjustment of channels 3/4. Channels 1/2 can be automatically adjusted or adjusted by [LVL CONTROL CH1] or [LVL CONTROL CH2].	
[FRONT VR CH1(CH3)]	Sets whether to enable the <F.AUDIO LEVEL> dial for input signals selected in audio CH1 (CH3).		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.
	[FRONT]	Enabled only when [FRONT] is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when [REAR] is selected.	
	[ALL]	Enabled when any input is selected.	
	[OFF]	Disabled regardless of the input selected. Recording levels do not change even if the volume dial is turned.	
[FRONT VR CH2(CH4)]	Sets whether to enable the <F.AUDIO LEVEL> dial for input signals selected in audio CH2 (CH4).		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.
	[FRONT]	Enabled only when [FRONT] is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when [REAR] is selected.	
	[ALL]	Enabled when any input is selected.	
	[OFF]	Disabled regardless of the input selected. Recording levels do not change even if the volume dial is turned.	
[AUTO LVL CH3(CH1)]	Selects whether to automatically adjust the level adjustment method for audio CH3 (CH1).		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.
	[ON]	Automatic adjustment is enabled.	
	[OFF]	Automatic adjustment is disabled. Can be adjusted using [LVL CONTROL CH3(CH1)] at this time.	
[AUTO LVL CH4(CH2)]	Selects whether to automatically adjust the level adjustment method for audio CH4 (CH2).		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.
	[ON]	Automatic adjustment is enabled.	
	[OFF]	Automatic adjustment is disabled. Can be adjusted using [LVL CONTROL CH4(CH2)] at this time.	
[LVL CONTROL CH3(CH1)]	Can be manually adjusted with this item when automatic level adjustment of audio CH3 (CH1) is [OFF]. **[0]…[70]…[100]**		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.

____ are factory settings.

Item	Description of settings		Remark
[LVL CONTROL CH4(CH2)]	Can be manually adjusted with this item when automatic level adjustment of audio CH4 (CH2) is [OFF]. **[0]…[70]…[100]**		• The channel is replaced when [CH3/4] is selected in [VR SELECT]. Setting values are inherited between replaced channels.
[MIC LOWCUT CH1]	Selects the microphone lowcut filter for input channel 1.		
	[FRONT]	Works when the front microphone is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when the rear microphone is selected.	
	[OFF]	The microphone lowcut filter does not work for any input.	
[MIC LOWCUT CH2]	Selects the microphone lowcut filter for input channel 2.		
	[FRONT]	Works when the front microphone is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when the rear microphone is selected.	
	[OFF]	The microphone lowcut filter does not work for any input.	
[MIC LOWCUT CH3]	Selects the microphone lowcut filter for input channel 3.		
	[FRONT]	Works when the front microphone is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when the rear microphone is selected.	
	[OFF]	The microphone lowcut filter does not work for any input.	
[MIC LOWCUT CH4]	Selects the microphone lowcut filter for input channel 4.		
	[FRONT]	Works when the front microphone is selected.	
	[W.L.]	Enabled only when wireless microphone receiver is selected.	
	[REAR]	Enabled only when the rear microphone is selected.	
	[OFF]	The microphone lowcut filter does not work for any input.	
[LIMITER CH1]	Selects the channel 1 limiter. Disabled when automatic adjustment of recording levels is selected. **[ON], [OFF]**		
[LIMITER CH2]	Selects the channel 2 limiter. Disabled when automatic adjustment of recording levels is selected. **[ON], [OFF]**		
[LIMITER CH3]	Selects the channel 3 limiter. Disabled when automatic adjustment of recording levels is selected. **[ON], [OFF]**		
[LIMITER CH4]	Selects the channel 4 limiter. Disabled when automatic adjustment of recording levels is selected. **[ON], [OFF]**		
[TEST TONE]	Selects test signals.		
	[NORMAL]	Outputs test tones to all channels if the <OUTPUT> switch is <BARS>, and <CH1> on the <AUDIO IN> switch is set to <FRONT>.	
	[ALWAYS]	Outputs test tones to all channels at all times when the <OUTPUT> switch is <BARS>.	
	[CHSEL]	Outputs test tones to the channels where <CH1> or <CH2> on the <AUDIO IN> switch is set to <FRONT> when the <OUTPUT> switch is set to <BARS>. The test tones are output to CH3, CH4.	
	[OFF]	Does not output the test tone.	
[FRONT MIC POWER]	Sets the phantom power of the front microphone. **[ON], [OFF]**		
[REAR MIC POWER]	Sets the phantom power of the rear microphone. Phantom power is not output when [OFF] is selected, even if the <REAR AUDIO CH1> and <REAR AUDIO CH2> switches are set to <+48V>. **[ON], [OFF]**		
[MONITOR SELECT]	Selects the signal method to output to the monitor when the <MONITOR SELECT> switch is set to <ST> (stereo). **[STEREO], [MIX]**		
[FRONT MIC LEVEL]	Selects the front microphone input level. **[–40dB], [–50dB]**		
[REAR MIC CH1/3 LVL]	Selects the rear microphone input level. **[–50dB], [–60dB]**		
[REAR MIC CH2/4 LVL]	Selects the rear microphone input level. **[–50dB], [–60dB]**		
[REAR LINE IN LVL]	Selects the rear line input level. **[–3dB], [0dB], [4dB]**		
[AUDIO OUT LVL]	Selects the audio output level. **[–3dB], [0dB], [4dB]**		
[HEADROOM]	Sets the headroom (standard level). **[18dB], [20dB]**		

____ are factory settings.

Item	Description of settings		Remark
[WIRELESS WARN]	Sets whether to display a warning when the reception status of the wireless microphone receiver is poor. **[ON], [OFF]**		
[WIRELESS TYPE]	Selects the type of wireless microphone receiver.		
	[SINGLE]	Selects a single channel type wireless microphone receiver.	
	[DUAL]	Selects a double channel type wireless microphone receiver.	

____ are factory settings.

[USB/LAN]

Item	Description of settings		Remark
[USB MODE SELECT]	Sets the camera operation mode when an external device is connected to the USB.		• This item cannot be changed when [USB MODE] is set to [ON].
	[STORAGE]	Sets the mode to use to connect an external hard disk drive or other device.	
	[DEVICE]	Selects the USB mode when connecting the camera to a computer via USB 2.0, and using the P2 card as mass storage.	
[USB MODE]	Turns operation of the mode selected in [USB MODE SELECT] [ON]/[OFF]. **[ON], [OFF]**		• Once the power is turned off, it is always set to [OFF] the next time power is turned on. • When [DEVICE] is selected for [USB MODE SELECT] and [USB MODE] is set to [ON] (in USB device mode), the menu cannot be opened. In this case, you can exit the USB device mode (return to [OFF]) by pressing the <EXIT> mode. For details, refer to “Connecting to a computer in the USB device mode” (page 185). • The setting cannot be changed while the thumbnail screen is displayed.

____ are factory settings.

[LCD MONITOR]

Item	Description of settings		Remark
[BACKLIGHT]	Adjusts the brightness of the LCD monitor backlight.		
	[–3]	Becomes the most dark.	
	[–2]	Darkens more than normal.	
	[–1]		
	[0]	Normal brightness.	
	[1]	Brightens more than normal.	
[BRIGHTNESS]	Adjusts the brightness of the LCD monitor. **[–15]…[0]…[15]**		
[COLOR LEVEL]	Adjusts the LCD monitor hue. **[–15]…[0]…[15]**		
[CONTRAST]	Adjusts the contrast of the LCD monitor. **[–30]…[0]…[30]**		
[SELF SHOOT]	Selects whether to invert the right and left sides of the LCD monitor.		
	[NORMAL]	Does not invert the left and right sides.	
	[MIRROR]	Inverts the left and right sides.	
[VF/LCD CHAR]	Selects whether to display a character on the image of the LCD monitor and viewfinder.		• This item can be set in the main menu → [VF] → [VF DISPLAY] as well.
	[ON]	Displays a character on both the viewfinder and LCD monitor.	
	[VF-OFF]	Does not superimpose on the viewfinder, and displays on the LCD monitor.	
	[LCD-OFF]	Does not superimpose on the LCD monitor, and displays on the viewfinder.	

____ are factory settings.

[BATTERY/P2CARD]

Item	Description of settings		Remark
[BATTERY SELECT]	Selects the battery to use.		• When the battery charge level percentage cannot be detected, it will follow the setting value of [TYPE A] even if it is set to [BATT STAT] or [ENDURA STAT]. Make sure that the [TYPE A] setting values [FULL] (fully charged), [NEAR END] (near end), or [END] (end) is appropriate for the battery being used.
	[HYTRON140]	Detects the battery charge level according to the selected battery when the Anton/Bauer HYTRON140 or DIONIC90, the IDX ENDURA10 (E-10), and the PAG PAG L96e are selected.	
	[DIONIC90]		
	[ENDURA10]		
	[PAG L96e]		
	[TYPE A]	Select any item when a battery other than [HYTRON140], [DIONIC90], [ENDURA10], or [PAG L96e] is used. At this time, set [FULL] (full voltage), [NEAR END] (near end warning voltage), and [END] (end voltage) in the main menu → [I/F SETUP] → [BATTERY SETTING] (page 163) according to the battery in use.	
	[TYPE B]		
	[TYPE C]		
	[BATT STAT]	When using a battery whose charge level is detected as a percentage value, near end and end operation is conducted according to the percentage value of the charge level if [BATT STAT] is selected. Set the percentage value of [BATT STAT NEAR END] (near end) and [BATT STAT END] (end) in the main menu → [I/F SETUP] → [BATTERY SETTING] (page 163) according to the battery in use.	
	[ENDURA STAT]	Select when IDX ENDURA battery is used to operate at near end and end according to the percentage value of the charge level information. Set the percentage value of [ENDURA STAT NEAR END] (near end) and [ENDURA STAT END] (end) in the main menu → [I/F SETUP] → [BATTERY SETTING] (page 163) according to the battery in use.	
[EXT DC IN SELECT]	Sets the type of charge level to connect a battery to the <DC IN> terminal. Also detects a charge level that corresponds to the selected type. Information about selecting a battery type is the same as [BATTERY SELECT]. Displays the analog voltage on the viewfinder screen. **[DC PWR SUPPLY], [HYTRON140], [DIONIC90], [ENDURA10], [PAG L96e], [TYPE A], [TYPE B], [TYPE C]**		
[BATT NEAR END ALARM]	Selects whether to play the warning sound at battery near end. **[ON], [OFF]**		
[BATT NEAR END CANCEL]	If set to [ON], the warning sound and warning display output can be canceled when the <MARKER SEL>/<MODE CHECK/MENU CANCEL> switch is pushed towards the <MCK/MCL> side at battery near end. **[ON], [OFF]**		
[BATT END ALARM]	Sets whether to output the warning sound at battery near end. **[ON], [OFF]**		
[BATT REMAIN FULL]	Sets the content of the battery remaining charge bar of the display window when a battery with charge level display function is used.		
	[70%]	Fully displays at 70%.	
	[100%]	Fully displays at 100%.	
[CARD NEAR END ALARM]	Sets whether to output the warning sound at P2 card near end. **[ON], [OFF]**		
[CARD NEAR END TIME]	Sets remaining time to emit the P2 card near end warning. **[2min], [3min]**		
[CARD END ALARM]	Sets whether to output the warning sound at P2 card end. **[ON], [OFF]**		
[CARD REMAIN/Seg]	Sets the time of one segment (■) for the P2 card remaining capacity bar in the display window.		
	[3min/Seg]	One segment is three minutes	
	[5min/Seg]	One segment is five minutes	

____ are factory settings.

[BATTERY SETTING]

Item	Description of settings		Remark
[BATTERY MODE]	Selects whether to set the near end voltage of a battery.		
	[AUTO]	Automatically set.	
	[MANUAL]	Manually set.	
[HYTRON140 NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [HYTRON140]. **[12.0V]…[13.1V]…[15.0V]**		
[DIONIC 90 NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [DIONIC90]. **[12.0V]…[13.7V]…[15.0V]**		

____ are factory settings.

Item	Description of settings	Remark
[ENDURA10 NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [ENDURA10]. **[12.0V]…[13.4V]…[15.0V]**	
[PAG L96e NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [PAG L96e]. **[12.0V]…[13.0V]…[15.0V]**	
[TYPE A FULL]	Selects the voltage for full display in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE A]. **[13.0V]…[15.6V]…[17.0V]**	The [TYPE A] factory setting corresponds to the IDX ENDURA ELETE.
[TYPE A NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE A]. **[11.0V]…[13.2V]…[15.0V]**	
[TYPE A END]	Selects the end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE A]. **[11.0V]…[12.5V]…[15.0V]**	
[TYPE B FULL]	Selects the voltage for full display in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE B]. **[13.0V]…[15.9V]…[17.0V]**	The [TYPE B] factory setting corresponds to the Anton/Bauer DIONIC HC.
[TYPE B NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE B]. **[11.0V]…[12.9V]…[15.0V]**	
[TYPE B END]	Selects the end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE B]. **[11.0V]…[12.5V]…[15.0V]**	
[TYPE C FULL]	Selects the voltage for full display in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE C]. **[13.0V]…[15.9V]…[17.0V]**	
[TYPE C NEAR END]	Selects the near end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE C]. **[11.0V]…[13.2V]…[15.0V]**	
[TYPE C END]	Selects the end voltage in steps of 0.1 V when the main menu → [I/F SETUP] → [BATTERY/P2CARD] → [BATTERY SELECT] is set to [TYPE C]. **[11.0V]…[12.5V]…[15.0V]**	
[BATT STAT NEAR END]	Selects the near end percent value. **[4%], [5%], [6%], [7%], [8%], [9%], [10%], [12%], [14%], [16%], [18%], [20%]**	• When the battery charge level percentage cannot be detected, this will follow the near end voltage value set in [TYPE A]. • If a battery is used for which the remaining charge is displayed in units of 10%, the setting value and actual near end warning may vary slightly.
[BATT STAT END]	Selects the end percent value. **[1%]…[10%]**	• When the battery charge level percentage cannot be detected, this will follow the end voltage value set in [TYPE A]. • When using a battery which displays battery charge level by units of 10%, end is determined only in two stages: when it is set between [1%] and [5%], or when it is set between [6%] to [10%].
[ENDURA STAT NEAR END]	Selects the near end percent value. **[4%], [5%], [6%], [7%], [8%], [9%], [10%], [12%], [14%], [16%], [18%], [20%]**	• When the battery charge level percentage cannot be detected, this will follow the near end voltage value set in [TYPE A]. • If a battery is used for which the remaining charge is displayed in units of 10%, the setting value and actual near end warning may vary slightly.
[ENDURA STAT END]	Selects the end percent value. **[1%]…[10%]**	• When the battery charge level percentage cannot be detected, this will follow the end voltage value set in [TYPE A]. • When using a battery which displays battery charge level by units of 10%, end is determined only in two stages: when it is set between [1%] and [5%], or when it is set between [6%] to [10%].

____ are factory settings.

[FILE]

SD memory cards cannot be read, and file operations associated with saves, [LOAD USER DATA] and [LOAD FACTORY DATA] cannot be performed in the following cases:

- While the thumbnail screen is displayed
  Remedy: Press the <THUMBNAIL> button to close the thumbnail screen, and try the operations again.
- During playback
  Remedy: Press the <STOP> button to stop playback, and try the operations again.

[SETUP DATA (SD CARD)]

Item	Description of settings	Remark
[LOAD]	Loads the file selected from the setup data file list saved to the SD memory card to the camera. The data selected in [SETUP DATA SELECT] is loaded.	
[SAVE]	Overwrites the current menu setting values in the camera to the file selected from the existing file list saved to the SD memory card. Data selected in [SETUP DATA SELECT] is saved.	
[SAVE AS]	Enters the current menu setting values of the camera to file name and title as a new file and saves it to the SD memory card. Data selected in [SETUP DATA SELECT] is saved.	

____ are factory settings.

[SETUP DATA SELECT]

Item	Description of settings	Remark
[SYSTEM]	Handles the menu in the main menu → [SYSTEM].	• Select menu items to save to/read from to SD memory card in the main menu → [FILE] → [SETUP DATA (SD CARD)]. • The factory settings are as follows: - [SYSTEM], [CAMERA ID], [OPTION MENU] → without [✓] - Other → [✓] present
[CAMERA ID]	Handles the menu in the main menu → [CAMERA] → [CAMERA ID].	
[USER MENU SEL]	Handles the menu in the main menu → [USER MENU SEL].	
[PAINT(LEVEL)]	Handles the menu adjustment value in the main menu → [PAINT].	
[PAINT([S]SELECT)]	Handles the menu setting value (items with [S]) in the main menu → [PAINT].	
[VF]	Handles the menu in the main menu → [VF].	
[CAMERA]	Handles the menu in the main menu → [CAMERA].	
[REC/PB]	Handles the menu in the main menu → [REC/PB].	
[CLIP]	Handles the menu setting value in the main menu → [CLIP].	
[I/F SETUP]	Handles the menu in the main menu → [I/F SETUP].	
[MAINTENANCE]	Handles the menu setting value in the main menu → [MAINTENANCE].	
[OPTION MENU]	Handles [OPTION MENU].	

____ are factory settings.

[CAC FILE (SD CARD)]

Item	Description of settings		Remark
[LOAD]	Selects the chromatic aberration compensation data file saved to the SD memory card and loads to the camera.		
	[STORE MEM No.]	Specifies the file number when saving chromatic aberration compensation data of the SD memory card loaded in [LOAD] to the camera.	
[DELETE]	Selects and deletes the chromatic aberration compensation data file saved to the SD memory card.		

____ are factory settings.

[LENS FILE]

Item	Description of settings	Remark
[LOAD]	Selects the lens file saved to the camera memory, loads it and uses it as a setting value for the current operation.	
[SAVE]	Specifies and saves the title and number of current lens setting values to the memory of this camera.	
[CLEAR ALL FILE]	Clears and initializes all values saved to the lens file.	

____ are factory settings.

[LENS FILE (SD CARD)]

Item	Description of settings	Remark
[LOAD]	Selects a lens file saved to the SD memory card and loads it as one set of lens files (8 file set) in the camera.	
[SAVE]	Specifies and saves the title and number of a lens file (1set of 8 files) in the camera to the SD memory card.	

____ are factory settings.

[SCENE]

Item	Description of settings	Remark
[LOAD]	Selects and loads a scene file saved in the camera memory.	

____ are factory settings.

Item	Description of settings	Remark
[SAVE]	Specifies a title and file number for the current setting values and saves them as a scene file in the camera memory.	
[CLEAR]	Selects and initializes a scene file saved in the camera memory. The title is removed and saved data is returned to factory settings.	

____ are factory settings.

[SD CARD PROPERTY]

Displays the SD memory card status.
The format condition, available space, etc. can be confirmed.

Item	Description of settings	Remark
[SD STANDARD]	Indicates whether an SD memory card is formatted according to the SD/SDHC/SDXC standard. [SUPPORTED]: Complies with SD/SDHC/SDXC standards [NOT SUPPORTED]: Does not comply with SD/SDHC/SDXC standards	
[USED]	Displays used capacity (bytes).	
[BLANK]	Displays available space (bytes).	
[TOTAL]	Displays total capacity (bytes).	
[PROXY REM]	Displays remaining recording capacity of SD card when recording proxy.	
[NUMBER OF CLIPS]	Copy and proxy records display the clip quantity inside an SD memory card.	
[PROTECT]	Write prohibited.	

____ are factory settings.

[FORMAT SD CARD]

Formats an SD memory card.

[LOAD USER DATA]

Loads a user file saved in the camera memory.

[INITIALIZE]

Item	Description of settings	Remark
[LOAD FACTORY DATA]	All menu values are set to factory settings.	• The following data is not returned to factory settings. - Scene files - User data - Lens files - Black shading data
[SAVE USER DATA]	User menu setting values are saved as user data in the camera memory. Can be used as saved data the user can uniquely set. Load user data in the main menu → [FILE] → [LOAD USER DATA].	

____ are factory settings.

[MAINTENANCE]

[SYSTEM CHECK]

Item	Description of settings	Remark
[COLOR CHECK]	Displays the RGB level near screen center in the viewfinder, and displays whether all systems (from the optical to digital) are transmitting normally.	

____ are factory settings.

[LENS ADJ]

Item	Description of settings	Remark
[F2.8 ADJ]	Sets the iris to F2.8 only when set to [ON]. (Adjusts so that it becomes F2.8 at the lens) **[ON], [OFF]**	
[F16 ADJ]	Sets the iris to F16 only when set to [ON]. (Adjusts so that it becomes F16 at the lens) Can be used as saved data the user can uniquely set. **[ON], [OFF]**	

____ are factory settings.

[BLACK SHADING]

Item	Description of settings	Remark
[CORRECT]	Enables/disables digital black shading correction. **[ON], [OFF]**	
[DETECTION(DIG)]	Executes digital black shading correction.	

____ are factory settings.

[WHITE SHADING]

Item	Description of settings	Remark
[CORRECT]	Enables/disables white shading correction. **[ON], [OFF]**	
[R H SAW]	White shading correction is performed manually. Adjusts sawtooth waveforms and parabolic wave forms of RGB channels in the horizontal and vertical directions. **[–255]…[0]…[255]**	
[R H PARA]		
[R V SAW]		
[R V PARA]		
[G H SAW]		
[G H PARA]		
[G V SAW]		
[G V PARA]		
[B H SAW]		
[B H PARA]		
[B V SAW]		
[B V PARA]		

____ are factory settings.

[LENS FILE ADJ]

Item	Description of settings		Remark
[LENS FILE ADJ MODE]	Selects the mode to perform lens adjustment.		• Data adjusted in [LENS FILE ADJ] can be saved as a lens file to the SD memory card.
	[ON]	Uses the adjustment value of this [LENS FILE ADJ]. The Rch and Bch gain adjusted in the main menu → [PAINT] → [RB GAIN CONTROL], and the Rch, Gch, and Bch flare levels adjusted in [RGB BLACK CONTROL] are disabled.	
	[OFF]	The Rch and Bch gain adjusted in the main menu → [PAINT] → [RB GAIN CONTROL], and the Rch, Gch, and Bch flare levels adjusted in [RGB BLACK CONTROL] are enabled.	
[LENS R GAIN OFFSET]	Corrects the Rch sensitivity of the lens to use. **[–200]…[0]…[200]**		
[LENS B GAIN OFFSET]	Corrects the Bch sensitivity of the lens to use. **[–200]…[0]…[200]**		
[LENS R FLARE]	Adjusts the Rch flare level. **[0]…[100]**		
[LENS G FLARE]	Adjusts the Gch flare level. **[0]…[100]**		
[LENS B FLARE]	Adjusts the Bch flare level. **[0]…[100]**		

____ are factory settings.

[CAC ADJ]

Item	Description of settings		Remark
[CAC CONTROL]	Turns chromatic aberration correction (CAC) [ON]/[OFF].		
	[ON]	Compensates for chromatic aberration.	
	[OFF]	Does not compensate for chromatic aberration.	
[LIST/DELETE]	Views the list of CAC FILE stored in the camera internal memory and deletes files of the numbers selected from the list of CAC FILE. **[No1]…[No32]**		

____ are factory settings.

[SYSTEM]

[SYSTEM MODE]

Item	Description of settings		Remark
[LINE&FREQ]	Sets the system number of lines and frequency, recording format, and audio quantizing bit quantity. When the number of lines and frequency are selected, only the items that can be selected for those frequencies are displayed. If the frequency is changed, the device must be restarted. If a restart is required, a confirmation dialog will be shown.		• The setting values are saved together with the settings of [REC FORMAT] and [AUDIO SMPL RES] on each setting of [LINE&FREQ]. When the settings of [LINE&FREQ] are restored to the previous settings, these items are reset to the previous settings at the time.
	[1080-59.94P]	Selects the number of lines 1080P and system frequency 59.94 Hz.	
	[1080-50P]	Selects the number of lines 1080P and system frequency 50 Hz.	
	[1080-59.94i]	Selects the number of lines 1080i and system frequency 59.94 Hz.	
	[1080-50i]	Selects the number of lines 1080i and system frequency 50 Hz.	
	[480-59.94i]	Selects the number of lines 480i and system frequency 59.94 Hz.	
	[576-50i]	Selects the number of lines 576i and system frequency 50 Hz.	
[REC FORMAT]	Select the recording codec.		• [AVC-G50] and [AVC-G25] cannot be selected in the following cases. - When the main menu → [REC/PB] → [REC FUNCTION] → [RECORDING] is set to other than [NORMAL]
	[AVC-I100]	Selects AVC-Intra 100.	
	[AVC-I50]	Selects AVC-Intra 50.	
	[AVC-G50]	Selects AVC-LongG 50.	
	[AVC-G25]	Selects AVC-LongG 25.	
	[DVCPRO HD]	Selects DVCPRO HD (100 Mbps).	
	[DVCPRO50]	Selects DVCPRO50 (50 Mbps).	
	[DVCPRO]	Selects DVCPRO (25 Mbps).	
	[DV]	Selects DV (25 Mbps).	
[AUDIO SMPL RES]	If the recording format is AVC-Intra 100/AVC-Intra 50, selects number of the audio recording quantizing bits.		• When the recording format is AVC-LongG 50 or AVC-LongG 25, select [24BIT]. When the recording format is DVCPRO HD, DVCPRO50, DVCPRO, or DV, select [16BIT]. • Clips recorded at 24-bit should be played back using a 24-bit compatible P2 device or P2 Viewer Plus. The clip numbers of P2 devices that are not 24-bit compatible are displayed in red and cannot be used for playback. Audio does not play back correctly on a P2 Viewer that is not 24-bit compatible. Always use the latest P2 Viewer Plus version. • For 24-bit compatible P2 devices and the latest P2 Viewer Plus information, visit the P2 support page on the following website. http://pro-av.panasonic.net/
	[16BIT]	16-bit is the audio recording bit quantity.	
	[24BIT]	24-bit is the audio recording bit quantity.	
[REC SIGNAL]	Switches the video input signal.		• Once the power is turned off, it is always set to [CAM] the next time power is turned on.
	[CAM]	Record signal from the camera	
	[SDI]	Record input from the <SDI IN> terminal	
[ASPECT]	Selects the aspect ratio to record. (Only in SD)		
	[16:9]	Recorded using the 16:9 aspect ratio.	
	[4:3]	Recorded using the 4:3 aspect ratio.	
[SCAN REVERSE]	Sets whether to use function to correct video when using an anamorphic lens or film lens.		
	[ON]	Corrects video. Inverts the top, bottom, left and right sides of a video.	
	[OFF]	Does not correct video.	

____ are factory settings.

[SYSTEM SETUP]

Item	Description of settings		Remark
[SETUP(7.5%)]	Switches the setup.		
	[ON]	Setup 7.5% is on.	
	[OFF]	Setup 7.5% is off.	
[P.OFF LCD DISPLAY]	Selects whether to set the time code of window display or display the count when the power is off.		
	[ON]	Sets and displays time code even when the power is off.	
	[OFF]	Settings and display on the display window are not available while the power is off.	

____ are factory settings.

[HOURS METER]

Item	Description of settings	Remark
[OPERATION]	Displays the total time the camera power was turned on.	
[P.ON TIMES]	Displays the total number of times the camera power was turned on.	

____ are factory settings.

[VERSION]

Item	Description of settings		Remark
[VERSION]	Displays the versions of the camera. Move the cursor right and left to change pages.		• Turn the jog dial button (or press the cursor buttons ◁/▷) to display the list screen for each firmware version.
	[VERSION]	Displays the version (representative version) of all firmware in the camera.	
	[MODEL NAME]	Displays the product name of the camera.	
	[SERIAL NO.]	Displays the serial number of the camera.	
	[MAC ADDRESS]	Displays MAC address of the camera (Media Access Control address).	
	[UID]	Displays the unique ID of the camera.	

[UPDATE]

Performs an update of the camera firmware. (Enabled only when there is a dedicated update file on the SD memory card.)

[USER MENU SEL]

This is a menu to select items to be displayed in [USER MENU]. For details, refer to “Setting [USER MENU]” (page 135) and “Setting items to [USER MENU] and loading/reading the settings to a data file” (page 170).

[OPTION MENU]

[OPTION]

Item	Description of settings		Remark
[ENG SECURITY]	Selects whether to place restrictions on opening and closing the menu screen.		
	[ON]	Disables opening menu items other than [USER MENU]. To release, consult your dealer.	
	[OFF]	Opening and closing are not restricted.	
[FAN MODE]	Sets the fan operation mode.		• Once the power is turned off, this item is always set to [AUTO] the next time power is turned on. If operation continues while the fan is stopped, the internal temperature of the camera rises and it may not be able to record or playback normally. Normally, use the camera in [AUTO]
	[AUTO]	If the camera internal temperature rises, the fan will automatically rotate.	
	[OFF]	The fan does not rotate at all times. The warning [FAN STOPPED] is displayed.	

____ are factory settings.

[AREA SETTING]

Item	Description of settings		Remark
[AREA SELECT]	Select the region in which to use the camera before the initial use.		• For details, refer to “Setting the region of use (setting frame frequency, etc.)” (page 11).
	[NTSC]	Selects an NTSC region other than Japan.	
	[NTSC (J)]	Selects Japan.	
	[PAL]	Selects the PAL region.	

____ are factory settings.

Setting items to [USER MENU] and loading/reading the settings to a data file

Setting items to [USER MENU]

- Indicates whether items that can be set to [USER MENU] can be set by page or by item.

✓: Items that can be set to [USER MENU] (items that are not selected in factory settings)

✓*1: Items that can be set to [USER MENU] (items that are selected in factory settings)

—: Items that cannot be set to [USER MENU]

Data files

- Symbols that indicate the types of data files are as follows.
  - S: Can save/read scene file data.
  - C: Can save to/read from the SD memory card in main menu → [FILE] → [SETUP DATA (SD CARD)].
  - U: Can save/read as user data. Refer to the main menu → [FILE] → [LOAD USER DATA] (page 166), [INITIALIZE] (page 166).
  - F: Can read in main menu → [FILE] → [INITIALIZE] → [LOAD FACTORY DATA]. Refer to [INITIALIZE] (page 166).
- Indicates whether details set in the menu are saved to the memory or read from the memory.

✓: is a data file target.

—: is not a data file target.

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[RB GAIN CONTROL]	[R GAIN AWB PRE]	—	✓	✓	✓	✓	✓
	[B GAIN AWB PRE]	—	✓	✓	✓	✓	✓
	[R GAIN AWB A]	—	✓	✓	✓	✓	✓
	[B GAIN AWB A]	—	✓	✓	✓	✓	✓
	[R GAIN AWB B]	—	✓	✓	✓	✓	✓
	[B GAIN AWB B]	—	✓	✓	✓	✓	✓
	[AWB A GAIN OFFSET]	—	✓	✓	✓	✓	✓
	[AWB B GAIN OFFSET]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[RGB BLACK CONTROL]	[MASTER PED]	—	✓*1	✓	✓	✓	✓
	[R PEDESTAL]	—	✓	✓	✓	✓	✓
	[G PEDESTAL]	—	✓	✓	✓	✓	✓
	[B PEDESTAL]	—	✓	✓	✓	✓	✓
	[PEDESTAL OFFSET]	—	✓	✓	✓	✓	✓
	[R FLARE]	—	✓	✓	✓	✓	✓
	[G FLARE]	—	✓	✓	✓	✓	✓
	[B FLARE]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[MATRIX]	[[S] L MATRIX TABLE]	—	—	✓	✓	✓	✓
	[[S] M MATRIX TABLE]	—	—	✓	✓	✓	✓
	[[S] H MATRIX TABLE]	—	—	✓	✓	✓	✓
	[[S] MATRIX TABLE]	—	—	✓	✓	✓	✓
	[MATRIX R-G]	—	—	✓	✓	✓	✓
	[MATRIX R-B]	—	—	✓	✓	✓	✓
	[MATRIX G-R]	—	—	✓	✓	✓	✓
	[MATRIX G-B]	—	—	✓	✓	✓	✓
	[MATRIX B-R]	—	—	✓	✓	✓	✓
	[MATRIX B-G]	—	—	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[COLOR CORRECTION]	[[S] L COLOR CORRECT]	—	—	✓	✓	✓	✓
	[[S] M COLOR CORRECT]	—	—	✓	✓	✓	✓
	[[S] H COLOR CORRECT]	—	—	✓	✓	✓	✓
	[R (SAT)]	—	—	✓	✓	✓	✓
	[R-R-Mg (SAT)]	—	—	✓	✓	✓	✓
	[R-Mg (SAT)]	—	—	✓	✓	✓	✓
	[Mg (SAT)]	—	—	✓	✓	✓	✓
	[Mg-B (SAT)]	—	—	✓	✓	✓	✓
	[B (SAT)]	—	—	✓	✓	✓	✓
	[B-Cy (SAT)]	—	—	✓	✓	✓	✓
	[Cy (SAT)]	—	—	✓	✓	✓	✓
	[Cy-G (SAT)]	—	—	✓	✓	✓	✓
	[G (SAT)]	—	—	✓	✓	✓	✓
	[G-Yl (SAT)]	—	—	✓	✓	✓	✓
	[Yl (SAT)]	—	—	✓	✓	✓	✓
	[Yl-Yl-R (SAT)]	—	—	✓	✓	✓	✓
	[Yl-R (SAT)]	—	—	✓	✓	✓	✓
	[Yl-R-R (SAT)]	—	—	✓	✓	✓	✓
	[R (PHASE)]	—	—	✓	✓	✓	✓
	[R-R-Mg (PHASE)]	—	—	✓	✓	✓	✓
	[R-Mg (PHASE)]	—	—	✓	✓	✓	✓
	[Mg (PHASE)]	—	—	✓	✓	✓	✓
	[Mg-B (PHASE)]	—	—	✓	✓	✓	✓
	[B (PHASE)]	—	—	✓	✓	✓	✓
	[B-Cy (PHASE)]	—	—	✓	✓	✓	✓
	[Cy (PHASE)]	—	—	✓	✓	✓	✓
	[Cy-G (PHASE)]	—	—	✓	✓	✓	✓
	[G (PHASE)]	—	—	✓	✓	✓	✓
	[G-Yl (PHASE)]	—	—	✓	✓	✓	✓
	[Yl (PHASE)]	—	—	✓	✓	✓	✓
	[Yl-Yl-R (PHASE)]	—	—	✓	✓	✓	✓
	[Yl-R (PHASE)]	—	—	✓	✓	✓	✓
	[Yl-R-R (PHASE)]	—	—	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LOW SETTING]	[[S] MASTER GAIN]	—	✓	✓	✓	✓	✓
	[H.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[V.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[DTL CORING]	—	✓	✓	✓	✓	✓
	[H.DTL FREQ.]	—	✓	✓	✓	✓	✓
	[LEVEL DEPEND.]	—	✓	✓	✓	✓	✓
	[MASTER GAMMA]	—	✓	✓	✓	✓	✓
	[BLACK GAMMA]	—	✓	✓	✓	✓	✓
	[B. GAMMA RANGE]	—	✓	✓	✓	✓	✓
	[[S] MATRIX TABLE]	—	✓	✓	✓	✓	✓
	[[S] COLOR CORRECT]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[MID SETTING]	[[S] MASTER GAIN]	—	✓	✓	✓	✓	✓
	[H.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[V.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[DTL CORING]	—	✓	✓	✓	✓	✓
	[H.DTL FREQ.]	—	✓	✓	✓	✓	✓
	[LEVEL DEPEND.]	—	✓	✓	✓	✓	✓
	[MASTER GAMMA]	—	✓	✓	✓	✓	✓
	[BLACK GAMMA]	—	✓	✓	✓	✓	✓
	[B. GAMMA RANGE]	—	✓	✓	✓	✓	✓
	[[S] MATRIX TABLE]	—	✓	✓	✓	✓	✓
	[[S] COLOR CORRECT]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[HIGH SETTING]	[[S] MASTER GAIN]	—	✓	✓	✓	✓	✓
	[H.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[V.DTL LEVEL]	—	✓	✓	✓	✓	✓
	[DTL CORING]	—	✓	✓	✓	✓	✓
	[H.DTL FREQ.]	—	✓	✓	✓	✓	✓
	[LEVEL DEPEND.]	—	✓	✓	✓	✓	✓
	[MASTER GAMMA]	—	✓	✓	✓	✓	✓
	[BLACK GAMMA]	—	✓	✓	✓	✓	✓
	[B. GAMMA RANGE]	—	✓	✓	✓	✓	✓
	[[S] MATRIX TABLE]	—	✓	✓	✓	✓	✓
	[[S] COLOR CORRECT]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[ADDITIONAL DTL]	[KNEE APE LVL]	—	✓	✓	✓	✓	✓
	[DTL GAIN(+)]	—	✓	✓	✓	✓	✓
	[DTL GAIN(–)]	—	✓	✓	✓	✓	✓
	[DTL CLIP]	—	✓	✓	✓	✓	✓
	[DTL SOURCE]	—	✓	✓	✓	✓	✓
	[MASTER DTL]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SKIN TONE DTL]	[[S] SKIN TONE DTL]	✓	—	✓	✓	✓	✓
	[[S] ZEBRA VF]	✓	—	✓	✓	✓	✓
	[[S] ZEBRA SDI OUT1]	✓	—	✓	✓	✓	✓
	[[S] ZEBRA MONI]	✓	—	✓	✓	✓	✓
	[DETECT TABLE]	✓	—	✓	✓	✓	✓
	[SKIN TONE GET]	✓	—	—	—	—	—
	[SKIN DTL EFFECT]	✓	—	✓	✓	✓	✓
	[I CENTER]	✓	—	✓	✓	✓	✓
	[I WIDTH]	✓	—	✓	✓	✓	✓
	[Q WIDTH]	✓	—	✓	✓	✓	✓
	[Q PHASE]	✓	—	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[KNEE/LEVEL]	[MASTER PED]	—	✓*1	✓	✓	✓	✓
	[[S] MANUAL KNEE]	—	✓	✓	✓	✓	✓
	[KNEE MASTER POINT]	—	✓	✓	✓	✓	✓
	[KNEE MASTER SLOPE]	—	✓	✓	✓	✓	✓
	[[S] WHITE CLIP]	—	✓	✓	✓	✓	✓
	[WHITE CLIP LVL]	—	✓	✓	✓	✓	✓
	[A.KNEE POINT]	—	✓	✓	✓	✓	✓
	[A.KNEE LVL]	—	✓	✓	✓	✓	✓
	[A.KNEE RESPONSE]	—	✓	✓	✓	✓	✓
	[CHROMA LEVEL]	—	✓	✓	✓	✓	✓
	[DRS MODE]	—	✓	✓	✓	✓	✓
	[DRS EFFECT DEPTH]	—	✓	✓	✓	✓	✓
	[[S] HI-COLOR SW]	—	✓	✓	✓	✓	✓
	[HI-COLOR LVL]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[GAMMA]	[MASTER GAMMA]	—	✓	✓	✓	✓	✓
	[R GAMMA]	—	✓	✓	✓	✓	✓
	[B GAMMA]	—	✓	✓	✓	✓	✓
	[GAMMA MODE SEL]	—	✓	✓	✓	✓	✓
	[F-REC DYNAMIC LVL]	—	✓	✓	✓	✓	✓
	[F-REC BLACK STR LVL]	—	✓	✓	✓	✓	✓
	[V-REC KNEE SLOPE]	—	✓	✓	✓	✓	✓
	[V-REC KNEE POINT]	—	✓	✓	✓	✓	✓

Item ([PAINT])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[[S] CAMERA SETTING]	[SHOOTING MODE]	—	✓*1	✓	✓	✓	✓
	[DETAIL]	—	✓	✓	✓	✓	✓
	[2D LPF]	—	✓	✓	✓	✓	✓
	[GAMMA]	—	✓	✓	✓	✓	✓
	[TEST SAW]	—	✓	✓	✓	✓	✓
	[FLARE]	—	✓	✓	✓	✓	✓
	[H-F COMPE.]	—	✓	✓	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[VF DISPLAY]	[VF/LCD CHAR]	—	✓	—	✓	✓	✓
	[VF MODE]	—	✓	—	✓	✓	✓
	[VF COLOR]	—	✓*1	—	✓	✓	✓
	[DISP CONDITION]	—	✓	—	✓	✓	✓
	[DISP MODE]	—	✓	—	✓	✓	✓
	[VF OUT]	—	✓	—	✓	✓	✓
	[VF DTL]	—	✓	—	✓	✓	✓
	[ZEBRA1 DETECT]	—	✓*1	—	✓	✓	✓
	[ZEBRA2 DETECT]	—	✓*1	—	✓	✓	✓
	[ZEBRA2]	—	✓*1	—	✓	✓	✓
	[LOW LIGHT LVL]	—	✓*1	—	✓	✓	✓
	[RC MENU DISP.]	—	✓	—	✓	✓	✓
	[MARKER/CHAR LVL]	—	✓*1	—	✓	✓	✓
	[SYNCHRO SCAN DISP]	—	✓	—	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[VF MARKER]	[TABLE]	✓*1	—	—	✓	✓	✓
	[CENTER MARK]	✓*1	—	—	✓	✓	✓
	[SAFETY MARK]	✓*1	—	—	✓	✓	✓
	[SAFETY AREA]	✓*1	—	—	✓	✓	✓
	[FRAME MARK]	✓*1	—	—	✓	✓	✓
	[FRAME SIG]	✓*1	—	—	✓	✓	✓
	[FRAME LVL]	✓*1	—	—	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[VF USER BOX]	[USER BOX]	✓*1	—	—	✓	✓	✓
	[USER BOX WIDTH]	✓*1	—	—	✓	✓	✓
	[USER BOX HEIGHT]	✓*1	—	—	✓	✓	✓
	[USER BOX H POS]	✓*1	—	—	✓	✓	✓
	[USER BOX V POS]	✓*1	—	—	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[VF INDICATOR]	[EXTENDER]	—	✓	—	✓	✓	✓
	[SHUTTER]	—	✓	—	✓	✓	✓
	[FILTER]	—	✓	—	✓	✓	✓
	[WHITE]	—	✓	—	✓	✓	✓
	[GAIN]	—	✓	—	✓	✓	✓
	[IRIS]	—	✓	—	✓	✓	✓
	[CAMERA ID]	—	✓	—	✓	✓	✓
	[ID POSITION]	—	✓	—	✓	✓	✓
	[DATE/TIME]	—	✓	—	✓	✓	✓
	[ZOOM/FOCUS]	—	✓	—	✓	✓	✓
	[SYSTEM MODE]	—	✓	—	✓	✓	✓
	[REC FORMAT]	—	✓	—	✓	✓	✓
	[CAMERA MODE]	—	✓	—	✓	✓	✓
	[COLOR TEMP]	—	✓	—	✓	✓	✓
	[CAC]	—	✓	—	✓	✓	✓
	[GAMMA MODE]	✓	✓	—	✓	✓	✓
	[DRS]	—	✓	—	✓	✓	✓
	[FBC]	—	✓	—	✓	✓	✓
	[FBC WARNING DISP]	—	✓	—	✓	✓	✓
	[SHOOTING MODE]	—	✓	—	✓	✓	✓
	[FOCUS BAR]	—	✓	—	✓	✓	✓
	[P2CARD REMAIN]	—	✓	—	✓	✓	✓
	[REC MEDIA]	—	✓	—	✓	✓	✓
	[BATTERY]	—	✓	—	✓	✓	✓
	[AUDIO LVL]	—	✓	—	✓	✓	✓
	[TC ON COLOR BAR]	—	✓	—	✓	✓	✓
	[TC]	—	✓	—	✓	✓	✓
	[SYSTEM INFO]	—	✓	—	✓	✓	✓
	[SAVE LED]	—	✓	—	✓	✓	✓
	[REC STATUS]	—	✓	—	✓	✓	✓
	[PROXY DISP]	—	✓	—	✓	✓	✓
	[P-REC/i-REC]	—	✓	—	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[MODE CHECK IND]	[STATUS]	—	✓	—	✓	✓	✓
	[!LED]	—	✓	—	✓	✓	✓
	[FUNCTION]	—	✓	—	✓	✓	✓
	[AUDIO]	—	✓	—	✓	✓	✓
	[CAC]	—	✓	—	✓	✓	✓
	[USER SW STATUS]	—	✓	—	✓	✓	✓
	[P.ON IND]	—	✓	—	✓	✓	✓

Item ([VF])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[!LED]	[GAIN(0dB)]	—	✓	—	✓	✓	✓
	[DS.GAIN]	—	✓	—	✓	✓	✓
	[SHUTTER]	—	✓	—	✓	✓	✓
	[WHITE PRESET]	—	✓	—	✓	✓	✓
	[EXTENDER]	—	✓	—	✓	✓	✓
	[B.GAMMA]	—	✓	—	✓	✓	✓
	[MATRIX]	—	✓	—	✓	✓	✓
	[COLOR CORRECTION]	—	✓	—	✓	✓	✓
	[FILTER]	—	✓	—	✓	✓	✓
	[ATW]	—	✓	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[CAMERA ID]	[ID1]	—	—	—	✓	✓	✓
	[ID2]	—	—	—	✓	✓	✓
	[ID3]	—	—	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SHUTTER SPEED]	[SYNCHRO SCAN]	—	—	—	✓	✓	✓
	[POSITION1]	—	—	—	✓	✓	✓
	[POSITION2]	—	—	—	✓	✓	✓
	[POSITION3]	—	—	—	✓	✓	✓
	[POSITION4]	—	—	—	✓	✓	✓
	[POSITION5]	—	—	—	✓	✓	✓
	[POSITION6]	—	—	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SHUTTER SELECT]	[POSITION1 SEL]	—	—	—	✓	✓	✓
	[POSITION2 SEL]	—	—	—	✓	✓	✓
	[POSITION3 SEL]	—	—	—	✓	✓	✓
	[POSITION4 SEL]	—	—	—	✓	✓	✓
	[POSITION5 SEL]	—	—	—	✓	✓	✓
	[POSITION6 SEL]	—	—	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[USER SW]	[USER MAIN]	—	✓*1	—	✓	✓	✓
	[USER1]	—	✓*1	—	✓	✓	✓
	[USER2]	—	✓*1	—	✓	✓	✓
	[SHOT MARK (U3)]	—	✓	—	✓	✓	✓
	[TEXT MEMO (U4)]	—	✓	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SW MODE]	[RET SW]	—	✓	—	✓	✓	✓
	[S.BLK LVL]	—	✓	—	✓	✓	✓
	[AUTO KNEE SW]	—	✓	✓	✓	✓	✓
	[SHD,ABB SW CTL]	—	✓	—	✓	✓	✓
	[COLOR BARS]	—	✓	—	✓	✓	✓
	[WFM]	—	✓	—	✓	✓	✓
	[WFM DISP]	—	✓	—	✓	✓	✓
	[S.GAIN OFF]	—	✓	—	✓	✓	✓
	[DS.GAIN OFF]	—	✓	—	✓	✓	✓
	[D.ZOOM x2]	—	✓	—	✓	✓	✓
	[D.ZOOM x3]	—	✓	—	✓	✓	✓
	[D.ZOOM x4]	—	✓	—	✓	✓	✓
	[FBC(SHUTTER ON)]	—	✓	—	✓	✓	✓
	[RC CHECK SW]	—	✓	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[WHITE BALANCE MODE]	[FILTER INH]	—	✓	—	✓	✓	✓
	[SHOCKLESS AWB]	—	✓	—	✓	✓	✓
	[AWB AREA]	—	✓	—	✓	✓	✓
	[AWB B]	—	✓	—	✓	✓	✓
	[ATW SPEED]	—	✓	—	✓	✓	✓
	[TEMP PRE SEL SW]	—	✓	—	—	—	✓
	[COLOR TEMP PRE]	—	✓	—	—	—	✓
	[AWB A TEMP]	—	✓	—	—	—	✓
	[AWB B TEMP]	—	✓	—	—	—	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[USER SW GAIN]	[S.GAIN]	✓*1	—	—	✓	✓	✓
	[DS.GAIN]	✓*1	—	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LENS/IRIS]	[A.IRIS LEVEL]	—	✓	—	✓	✓	✓
	[A.IRIS PEAK/AVE]	—	✓	—	✓	✓	✓
	[A.IRIS WINDOW]	—	✓	—	✓	✓	✓
	[S.IRIS LEVEL]	—	✓	—	✓	✓	✓
	[IRIS GAIN]	—	✓	—	✓	✓	✓
	[IRIS GAIN VALUE]	—	✓	—	✓	✓	✓

Item ([CAMERA])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[AGC]	[AGC]	—	✓	—	✓	✓	✓
	[AGC LIMIT]	—	✓	—	✓	✓	✓
	[AGC POINT]	—	✓	—	✓	✓	✓

Item ([CLIP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[PROPERTY]	[CLIP PROPERTY]	✓*1	—	—	—	—	—
	[CARD STATUS]	✓*1	—	—	—	—	—
	[CPS PASSWORD]	✓*1	—	—	—	—	—
	[SD CARD]	✓*1	—	—	—	—	—
	[REMAIN SETUP]	✓*1	—	—	✓	✓	✓
	[FREE CAP. OF PARTITION]	✓*1	—	—	—	—	—

Item ([CLIP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
—	[REPOSITION]	✓*1	—	—	—	—	✓
	[DELETE]	✓*1	—	—	—	—	—
	[FORMAT]	✓*1	—	—	—	—	—
	[FORMAT(STORAGE)]	✓*1	—	—	—	—	—
	[COPY]	✓*1	—	—	—	—	—
	[EXPORT]	✓*1	—	—	—	—	—
	[IMPORT]	✓*1	—	—	—	—	—
	[REPAIR]	✓*1	—	—	—	—	—
	[RE-CONNECT]	✓*1	—	—	—	—	—
	[EXCH. THUMBNAIL]	✓*1	—	—	—	—	—
	[EXPLORE]	✓*1	—	—	—	—	—
	[AUTHENTICATE]	✓*1	—	—	—	—	—
	[CHANGE PARTITION NAME]	✓*1	—	—	—	—	—
	[DELETE LAST PARTITION]	✓*1	—	—	—	—	—
	[DELETE FOLDER]	✓*1	—	—	—	—	—

Item ([CLIP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[THUMBNAIL SETUP]	[INDICATOR]	✓*1	—	—	✓	✓	✓
	[DATA DISPLAY]	✓*1	—	—	✓	✓	✓
	[THUMBNAIL SIZE]	✓*1	—	—	✓	✓	✓
	[PB POSITION]	✓*1	—	—	✓	✓	✓
	[PROPERTY DISP.]	✓*1	—	—	✓	✓	✓

Item ([CLIP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[STORAGE COPY SETUP]	[VERIFY]	✓*1	—	—	✓	✓	✓

Item ([REC/PB])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[REC FUNCTION]	[RECORDING]	✓*1	—	—	✓	✓	✓
	[HOLD]	✓*1	—	—	✓	✓	✓
	[PRE REC]	✓*1	—	—	✓	✓	✓
	[PRE REC TIME]	✓*1	—	—	✓	✓	✓

Item ([REC/PB])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[REC/PB SETUP]	[REC MEDIA]	—	✓*1	—	✓	✓	✓
	[FILE SPLIT]	—	✓	—	✓	✓	✓
	[START TEXT MEMO]	—	✓	—	✓	✓	✓
	[P.ON REC SLOT SEL]	—	✓	—	✓	✓	✓
	[REC START]	—	✓	—	✓	✓	✓
	[REC TALLY]	—	✓	—	✓	✓	✓
	[ACCESS LED]	—	✓	—	✓	✓	✓
	[SEEK POS SEL]	—	✓	—	✓	✓	✓

Item ([REC/PB])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[PROXY SETUP]	[REC MEDIA]	✓	—	—	✓	✓	✓
	[REC MODE (HD)]	✓	—	—	✓	✓	✓
	[TC SUPER]	✓	—	—	✓	✓	✓
	[PROXY DISP]	✓	—	—	✓	✓	✓

Item ([REC/PB])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[TC/UB]	[UBG MODE]	—	✓	—	✓	✓	✓
	[VITC UBG MODE]	—	✓	—	✓	✓	✓
	[DF MODE]	—	✓	—	✓	✓	✓
	[TCG SET HOLD]	—	✓	—	✓	✓	✓
	[FIRST REC TC]	—	✓*1	—	✓	✓	✓
	[TC OUT]	—	✓	—	✓	✓	✓
	[TC OUTPUT REF]	—	✓	—	✓	✓	✓
	[REC CHECK REGEN]	—	✓	—	✓	✓	✓

Item ([REC/PB])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[REC METADATA]	[LOAD]	✓*1	—	—	—	—	—
	[RECORD]	✓*1	—	—	✓	✓	✓
	[USER CLIP NAME]	✓*1	—	—	✓	✓	✓
	[INITIALIZE]	✓*1	—	—	—	—	—
	[PROPERTY]	✓*1	—	—	—	—	—
	[LANGUAGE]	✓*1	—	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[OUTPUT SEL]	[OUTPUT ITEM]	✓*1	—	—	✓	✓	✓
	[SDI OUT1]	✓*1	—	—	✓	✓	✓
	[SDI OUT1 MODE]	✓*1	—	—	✓	✓	✓
	[SDI OUT1 CHAR]	✓*1	—	—	✓	✓	✓
	[SDI OUT2]	✓*1	—	—	✓	✓	✓
	[VIDEO OUT]	✓*1	—	—	✓	✓	✓
	[SDI2/HDMI OUT]	✓*1	—	—	✓	✓	✓
	[1080P SDI2/HDMI OUT]	✓*1	—	—	✓	✓	✓
	[3G-SDI OUT]	✓*1	—	—	✓	✓	✓
	[MONITOR OUT MODE]	✓*1	—	—	✓	✓	✓
	[MONITOR OUT ZEBRA]	✓*1	—	—	✓	✓	✓
	[SDI EDH]	✓*1	—	—	✓	✓	✓
	[THUMBNAIL OUT]	✓*1	—	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SDI OUT1 MARKER]	[MARKER SW]	✓	—	—	✓	✓	✓
	[CENTER MARK]	✓	—	—	✓	✓	✓
	[SAFETY MARK]	✓	—	—	✓	✓	✓
	[SAFETY AREA]	✓	—	—	✓	✓	✓
	[FRAME MARK]	✓	—	—	✓	✓	✓
	[FRAME SIG]	✓	—	—	✓	✓	✓
	[USER BOX]	✓	—	—	✓	✓	✓
	[USER BOX WIDTH]	✓	—	—	✓	✓	✓
	[USER BOX HEIGHT]	✓	—	—	✓	✓	✓
	[USER BOX H POS]	✓	—	—	✓	✓	✓
	[USER BOX V POS]	✓	—	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[MONI OUT MARKER]	[CENTER MARK]	✓	—	—	✓	✓	✓
	[SAFETY MARK]	✓	—	—	✓	✓	✓
	[SAFETY AREA]	✓	—	—	✓	✓	✓
	[FRAME MARK]	✓	—	—	✓	✓	✓
	[FRAME SIG]	✓	—	—	✓	✓	✓
	[USER BOX]	✓	—	—	✓	✓	✓
	[USER BOX WIDTH]	✓	—	—	✓	✓	✓
	[USER BOX HEIGHT]	✓	—	—	✓	✓	✓
	[USER BOX H POS]	✓	—	—	✓	✓	✓
	[USER BOX V POS]	✓	—	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[DOWNCON SETTING]	[DOWNCON MODE]	✓	—	—	✓	✓	✓
	[DETAIL]	✓	—	—	✓	✓	✓
	[H.DTL LEVEL]	✓	—	—	✓	✓	✓
	[V.DTL LEVEL]	✓	—	—	✓	✓	✓
	[DTL CORING]	✓	—	—	✓	✓	✓
	[H.DTL FREQ.]	✓	—	—	✓	✓	✓
	[2D LPF]	✓	—	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[GENLOCK]	[GENLOCK]	—	✓	—	✓	✓	✓
	[GL PHASE]	—	✓	—	✓	✓	✓
	[H PHASE COARSE]	—	✓	—	—	—	—
	[H PHASE FINE]	—	✓	—	—	—	—

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[MIC/AUDIO]	[VR SELECT]	—	✓	—	✓	✓	✓
	[FRONT VR CH1(CH3)]	—	✓*1	—	✓	✓	✓
	[FRONT VR CH2(CH4)]	—	✓*1	—	✓	✓	✓
	[AUTO LVL CH3(CH1)]	—	✓	—	✓	✓	✓
	[AUTO LVL CH4(CH2)]	—	✓	—	✓	✓	✓
	[LVL CONTROL CH3(CH1)]	—	✓	—	✓	✓	✓
	[LVL CONTROL CH4(CH2)]	—	✓	—	✓	✓	✓
	[MIC LOWCUT CH1]	—	✓	—	✓	✓	✓
	[MIC LOWCUT CH2]	—	✓	—	✓	✓	✓
	[MIC LOWCUT CH3]	—	✓	—	✓	✓	✓
	[MIC LOWCUT CH4]	—	✓	—	✓	✓	✓
	[LIMITER CH1]	—	✓	—	✓	✓	✓
	[LIMITER CH2]	—	✓	—	✓	✓	✓
	[LIMITER CH3]	—	✓	—	✓	✓	✓
	[LIMITER CH4]	—	✓	—	✓	✓	✓
	[TEST TONE]	—	✓	—	✓	✓	✓
	[FRONT MIC POWER]	—	✓	—	✓	✓	✓
	[REAR MIC POWER]	—	✓	—	✓	✓	✓
	[MONITOR SELECT]	—	✓	—	✓	✓	✓
	[FRONT MIC LEVEL]	—	✓	—	✓	✓	✓
	[REAR MIC CH1/3 LVL]	—	✓	—	✓	✓	✓
	[REAR MIC CH2/4 LVL]	—	✓	—	✓	✓	✓
	[REAR LINE IN LVL]	—	✓	—	✓	✓	✓
	[AUDIO OUT LVL]	—	✓	—	✓	✓	✓
	[HEADROOM]	—	✓	—	✓	✓	✓
	[WIRELESS WARN]	—	✓	—	✓	✓	✓
	[WIRELESS TYPE]	—	✓	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[USB/LAN]	[USB MODE SELECT]	✓*1	—	—	—	—	✓
	[USB MODE]	✓*1	—	—	—	—	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LCD MONITOR]	[BACKLIGHT]	—	✓*1	—	✓	✓	✓
	[BRIGHTNESS]	—	✓*1	—	✓	✓	✓
	[COLOR LEVEL]	—	✓*1	—	✓	✓	✓
	[CONTRAST]	—	✓*1	—	✓	✓	✓
	[SELF SHOOT]	—	✓	—	✓	✓	✓
	[VF/LCD CHAR]	—	✓	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[BATTERY/P2CARD]	[BATTERY SELECT]	—	✓*1	—	✓	✓	✓
	[EXT DC IN SELECT]	—	✓	—	✓	✓	✓
	[BATT NEAR END ALARM]	—	✓	—	✓	✓	✓
	[BATT NEAR END CANCEL]	—	✓	—	✓	✓	✓
	[BATT END ALARM]	—	✓	—	✓	✓	✓
	[BATT REMAIN FULL]	—	✓	—	✓	✓	✓
	[CARD NEAR END ALARM]	—	✓	—	✓	✓	✓
	[CARD NEAR END TIME]	—	✓	—	✓	✓	✓
	[CARD END ALARM]	—	✓	—	✓	✓	✓
	[CARD REMAIN/Seg]	—	✓	—	✓	✓	✓

Item ([I/F SETUP])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[BATTERY SETTING]	[BATTERY MODE]	—	—	—	✓	✓	✓
	[HYTRON140 NEAR END]	—	—	—	✓	✓	✓
	[DIONIC 90 NEAR END]	—	—	—	✓	✓	✓
	[ENDURA10 NEAR END]	—	—	—	✓	✓	✓
	[PAG L96e NEAR END]	—	—	—	✓	✓	✓
	[TYPE A FULL]	—	—	—	✓	✓	✓
	[TYPE A NEAR END]	—	—	—	✓	✓	✓
	[TYPE A END]	—	—	—	✓	✓	✓
	[TYPE B FULL]	—	—	—	✓	✓	✓
	[TYPE B NEAR END]	—	—	—	✓	✓	✓
	[TYPE B END]	—	—	—	✓	✓	✓
	[TYPE C FULL]	—	—	—	✓	✓	✓
	[TYPE C NEAR END]	—	—	—	✓	✓	✓
	[TYPE C END]	—	—	—	✓	✓	✓
	[BATT STAT NEAR END]	—	—	—	✓	✓	✓
	[BATT STAT END]	—	—	—	✓	✓	✓
	[ENDURA STAT NEAR END]	—	—	—	✓	✓	✓
	[ENDURA STAT END]	—	—	—	✓	✓	✓

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SETUP DATA (SD CARD)]	[LOAD]	✓*1	—	—	—	—	—
	[SAVE]	✓*1	—	—	—	—	—
	[SAVE AS]	✓*1	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SETUP DATA SELECT]	[SYSTEM]	—	✓	—	—	—	✓
	[CAMERA ID]	—	✓	—	—	—	✓
	[USER MENU SEL]	—	✓	—	—	—	✓
	[PAINT(LEVEL)]	—	✓	—	—	—	✓
	[PAINT([S]SELECT)]	—	✓	—	—	—	✓
	[VF]	—	✓	—	—	—	✓
	[CAMERA]	—	✓	—	—	—	✓
	[REC/PB]	—	✓	—	—	—	✓
	[CLIP]	—	✓	—	—	—	✓
	[I/F SETUP]	—	✓	—	—	—	✓
	[MAINTENANCE]	—	✓	—	—	—	✓
	[OPTION MENU]	—	✓	—	—	—	✓

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[CAC FILE (SD CARD)]	[LOAD]	—	—	—	—	—	—
	[DELETE]	—	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LENS FILE]	[LOAD]	—	—	—	—	—	—
	[SAVE]	—	—	—	—	—	—
	[CLEAR ALL FILE]	—	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LENS FILE (SD CARD)]	[LOAD]	—	—	—	—	—	—
	[SAVE]	—	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SCENE]	[LOAD]	✓*1	—	—	—	—	—
	[SAVE]	✓*1	—	—	—	—	—
	[CLEAR]	✓*1	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SD CARD PROPERTY]	[SD STANDARD]	✓*1	—	—	—	—	—
	[USED]	✓*1	—	—	—	—	—
	[BLANK]	✓*1	—	—	—	—	—
	[TOTAL]	✓*1	—	—	—	—	—
	[PROXY REM]	✓*1	—	—	—	—	—
	[NUMBER OF CLIPS]	✓*1	—	—	—	—	—
	[PROTECT]	✓*1	—	—	—	—	—

Item ([FILE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[FORMAT SD CARD]	—	—	✓*1	—	—	—	—
[LOAD USER DATA]	—	—	✓*1	—	—	—	—
[INITIALIZE]	[LOAD FACTORY DATA]	—	—	—	—	—	—
	[SAVE USER DATA]	—	—	—	—	—	—

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SYSTEM CHECK]	[COLOR CHECK]	✓	—	—	—	—	—

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LENS ADJ]	[F2.8 ADJ]	—	—	—	—	—	—
	[F16 ADJ]	—	—	—	—	—	—

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[BLACK SHADING]	[CORRECT]	—	—	—	✓	✓	✓
	[DETECTION(DIG)]	—	—	—	—	—	—

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[WHITE SHADING]	[CORRECT]	—	—	—	✓	✓	✓
	[R H SAW]	—	—	—	—	—	✓
	[R H PARA]	—	—	—	—	—	✓
	[R V SAW]	—	—	—	—	—	✓
	[R V PARA]	—	—	—	—	—	✓
	[G H SAW]	—	—	—	—	—	✓
	[G H PARA]	—	—	—	—	—	✓
	[G V SAW]	—	—	—	—	—	✓
	[G V PARA]	—	—	—	—	—	✓
	[B H SAW]	—	—	—	—	—	✓
	[B H PARA]	—	—	—	—	—	✓
	[B V SAW]	—	—	—	—	—	✓
	[B V PARA]	—	—	—	—	—	✓

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[LENS FILE ADJ]	[LENS FILE ADJ MODE]	—	—	—	—	—	✓
	[LENS R GAIN OFFSET]	—	—	—	—	—	✓
	[LENS B GAIN OFFSET]	—	—	—	—	—	✓
	[LENS R FLARE]	—	—	—	—	—	✓
	[LENS G FLARE]	—	—	—	—	—	✓
	[LENS B FLARE]	—	—	—	—	—	✓

Item ([MAINTENANCE])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[CAC ADJ]	[CAC CONTROL]	—	—	—	—	✓	✓
	[LIST/DELETE]	—	—	—	—	—	✓

Item ([SYSTEM])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SYSTEM MODE]	[LINE&FREQ]	✓	—	—	✓	✓	✓
	[REC FORMAT]	✓	—	—	✓	✓	✓
	[AUDIO SMPL RES]	✓	—	—	✓	✓	✓
	[REC SIGNAL]	✓	—	—	✓	✓	✓
	[ASPECT]	✓	—	—	✓	✓	✓
	[SCAN REVERSE]	✓	—	—	✓	✓	✓

Item ([SYSTEM])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[SYSTEM SETUP]	[SETUP(7.5%)]	—	✓	—	✓	✓	✓
	[P.OFF LCD DISPLAY]	—	✓	—	✓	✓	✓

Item ([SYSTEM])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[HOURS METER]	[OPERATION]	✓*1	—	—	—	—	—
	[P.ON TIMES]	✓*1	—	—	—	—	—

Item ([SYSTEM])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[VERSION]	[VERSION]	—	—	—	—	—	—

Item ([OPTION MENU])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[OPTION]	[ENG SECURITY]	—	—	—	—	—	—
	[FAN MODE]	—	—	—	—	—	—

Item ([OPTION MENU])		[USER MENU]		Data file			
		By page	By item	S	C	U	F
[AREA SETTING]	[AREA SELECT]	—	—	—	—	—	—

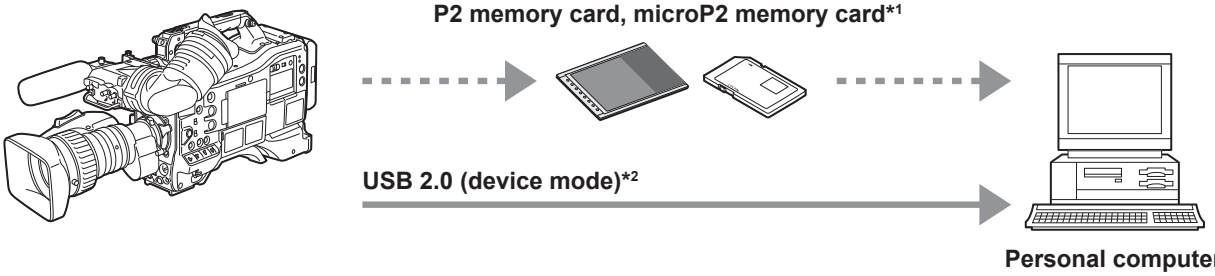
Chapter 8 Connecting to External Devices

Linking to External Devices

The camera records to P2 cards. These large-capacity P2 cards feature outstanding transfer speeds to enable HD recording, smooth editing and dubbing.

Connecting the external device to the <USB2.0> terminal (device)

Data (files) for performing nonlinear editing on a computer are transferred.

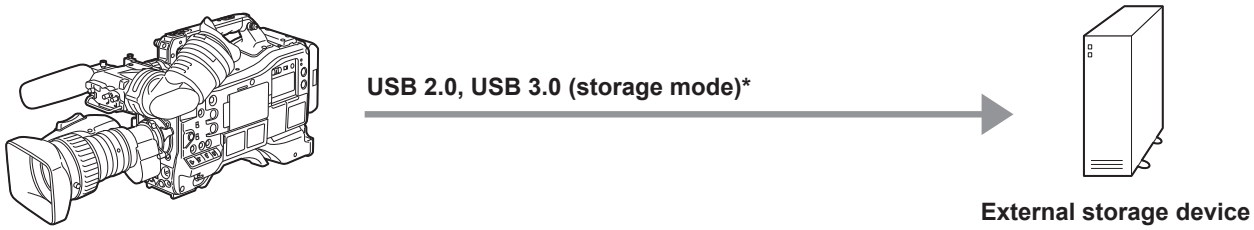


*1 P2 memory cards and microP2 memory cards are optionally available. They are not supplied with the camera.

*2 The USB 2.0 cable is not supplied with the camera. Prepare a commercial USB 2.0 cable (double-shielded for noise suppression).

Connecting the external device to the <USB3.0> terminal (host)

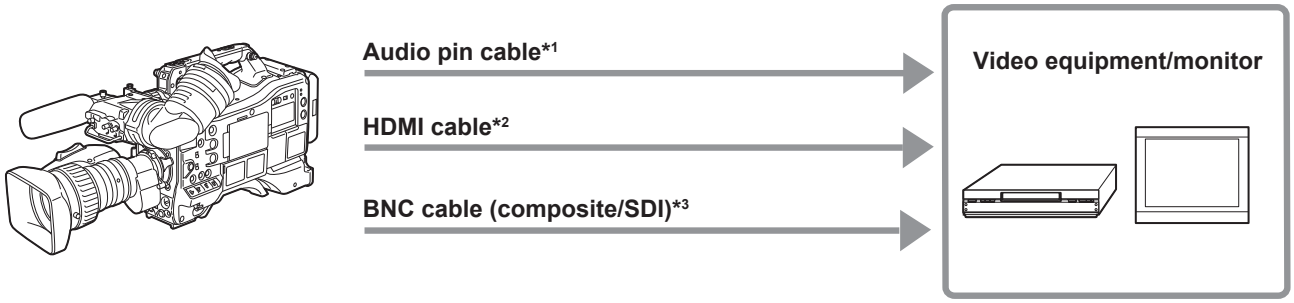
The camera directly controls the hard disk drive to transfer data.



* The USB 2.0 cable and USB 3.0 cable are not supplied with the camera. Prepare a commercial USB 2.0 cable or USB 3.0 cable (double-shielded for noise suppression).

Connecting the video and monitor

The camera directly controls the video and the monitor to output video.



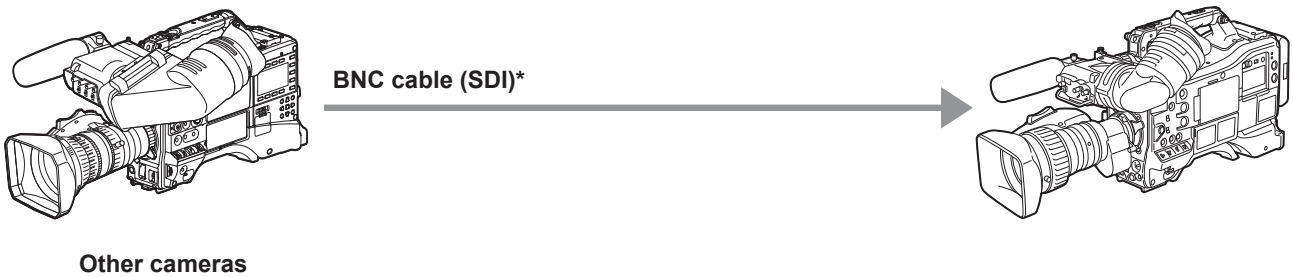
*1 Cables are optionally available. They are not supplied with the camera.

*2 Prepare the HDMI cable (optional) with double or more shielded. For the HDMI cable, use of the Panasonic HDMI cable is recommended.

*3 For the BNC cable (optional) connected to the <SDI OUT1>, <SDI OUT2>, and <VIDEO OUT> terminals, prepare a double-shielded cable equivalent to 5C-FB.

Recording images of external devices

Input images from other cameras to record to this camera.



* For the BNC cable (optional) connected to the <SDI IN> terminal, prepare a double-shielded cable equivalent to 5C-FB.

Connection function via <USB2.0> or <USB3.0> terminals

Connecting to a computer in the USB device mode

By connecting the camera to a computer via USB 2.0, the P2 card inserted in the camera can be used as mass storage.

Connecting to a computer

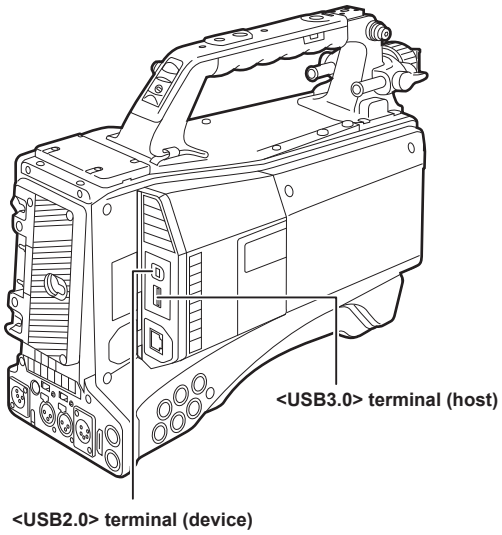


Fig. 1

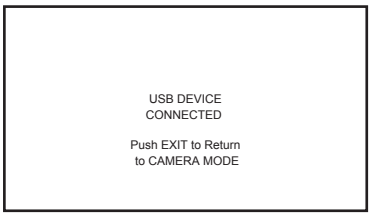


Fig. 2

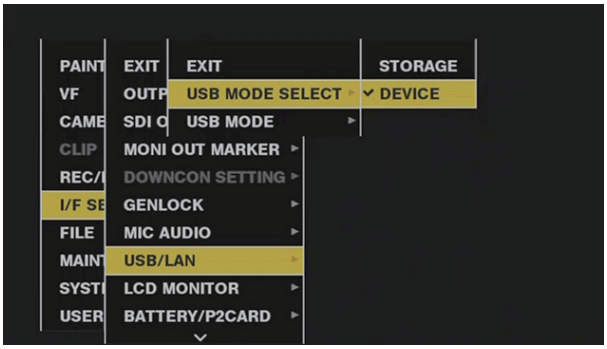


Fig. 3

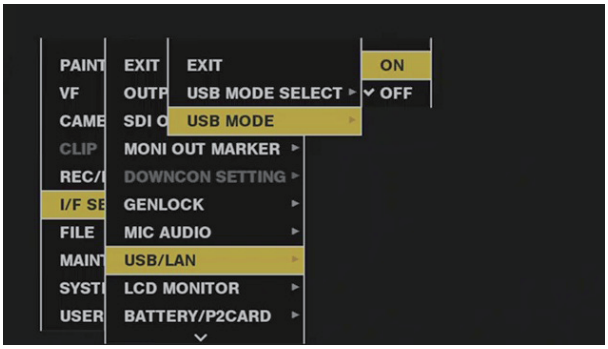


Fig. 4

1 Connect the USB cable to the <USB2.0> terminal (device). (Fig. 1)

2 Set [DEVICE] in the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE SELECT]. (Fig. 3)

For details, refer to “Setting menu basic operations” (page 134).

3 Set [ON] in the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE]. (Fig. 4)

During USB connection, [USB DEVICE CONNECTED] is displayed at the center of the viewfinder screen and the <USB> lamp is illuminated. (Fig. 2)
If connection is not made properly, [USB DEVICE DISCONNECTED] is displayed and the <USB> lamp flashes.

4 Exit the USB device mode.

There are three ways to do so:

- Turn the <POWER> switch of the camera to <OFF>.
- Press the <EXIT> button.
  (In USB device mode, [Push EXIT to Return to CAMERA MODE] is displayed at the bottom of the viewfinder screen)
- Press the <USER> buttons (<USER MAIN>/<USER1>/<USER2>), <SHOT MARKER> button or <TEXT MEMO> button to which [USB MODE] is assigned.

Returns to camera shooting status in approx. five seconds when USB device mode ends.

NOTE

- The USB 2.0 cable is not supplied with the camera. Prepare a commercial USB 2.0 cable (double-shielded for noise suppression).
- A USB connection cable of up to 5 m is supported, however, a cable of 3 m or shorter is recommended as preferable.
- [USB MODE] can be assigned to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>), the <SHOT MARKER>, and <TEXT MEMO> buttons in the main menu → [CAMERA] → [USER SW]. However, if these buttons are pressed while a menu or thumbnail is open, the mode cannot be changed to USB device mode or normal mode.
- Before making USB connection for the first time, install P2 software to your computer from the CD-ROM provided with the camera.

- Download the USB driver from the website and install it into your computer. For installation procedure of the driver, refer to the installation manual on the website.
  For the latest information on the driver, visit the following website.
  http://pro-av.panasonic.net/
- The camera supports only USB 2.0. Ensure your computer supports USB 2.0.
- When connecting the camera to a computer via USB, ensure that no other device is connected to the computer via USB.
- When connecting the camera via USB, do not eject the P2 card.
- When USB is connected, the P2 card access LED turns off when not accessed.
- When the camera is operating in the USB device mode, no camera shooting, recording/playback operation or clip thumbnail operation is allowed.
- When the camera is operating in the USB device mode, the P2 card remaining capacity and status are not displayed. Video and audio are not output to the viewfinder, LCD monitor and <SDI OUT1> terminal or monitor output terminals (<SDI OUT2>, <HDMI OUT>, and <VIDEO OUT>).

USB storage mode

A hard disk drive or solid-state drive connectable to the <USB3.0> terminal (host) via USB 2.0 or USB 3.0 can be connected to store card data, view thumbnails of saved clips, or write back to a P2 card.

Switching to the USB storage mode

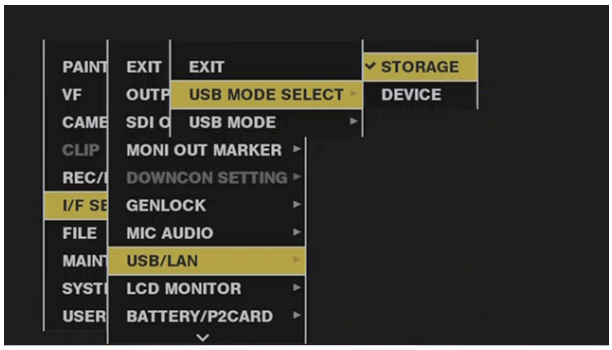


Fig. 1

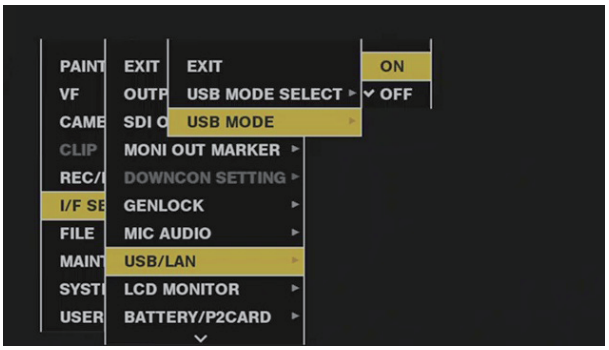


Fig. 2

1 Set [STORAGE] in the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE SELECT]. (Fig. 1)

For details, refer to “Setting menu basic operations” (page 134).

2 Set [ON] in the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE]. (Fig. 2)

- The camera enters the USB storage mode.
- During USB storage mode, [USB STORAGE CONNECTED] is displayed at the center of the viewfinder screen and the <USB> lamp is illuminated. If the hard disk drive is not connected properly, [USB STORAGE DISCONNECTED] is displayed and the <USB> lamp flashes.
- [USB MODE] can be assigned to the <USER> buttons (<USER MAIN>/<USER1>/<USER2>), the <SHOT MARKER>, and <TEXT MEMO> buttons in the main menu → [CAMERA] → [USER SW]; pressing these buttons switches between USB storage mode and normal storage mode. However, if these buttons are pressed while a menu or thumbnail is open, the mode cannot be changed to USB device mode or normal mode.
  For details, refer to “Assigning functions to <USER> buttons” (page 56).

3 Press the <THUMBNAIL> button.

- The thumbnail screen is displayed.
- Ensure that [USB] is displayed at the top right of the screen.
- If a storage device is connected, the icon that indicates storage device status at the top right illuminates. However, a red mark indicates that the device cannot be used.
  For USB storage mode details, refer to “Connecting to external devices using the <USB3.0> terminal (host) (USB storage mode)” (page 123).

4 Exit the USB storage mode.

There are three ways to do so:

- Turn the <POWER> switch of the camera to <OFF>.
- With the thumbnail screen closed, set the main menu → [I/F SETUP] → [USB/LAN] → [USB MODE] to [OFF].
- Press any one of the <USER> buttons (<USER MAIN>/<USER1>/<USER2>), <SHOT MARKER> button, or <TEXT MEMO> button to which [USB MODE] is assigned. However, this is disabled when a menu or thumbnail is open.

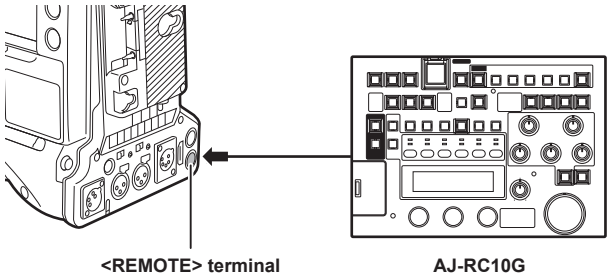
NOTE

- In USB storage mode, a P2 card can be played back. Camera video and external input cannot be recorded.
  The clips written to the hard disk drive must be written back to the P2 card for playback.
- A storage device cannot be connected to the <USB2.0> terminal (sub-host) (page 23).
- While connecting a storage device, use the fully charged battery or an external DC power supply to avoid problems in copying or formatting operations.
- For details on storage devices, refer to “Storage device types and available functions” (page 123).

Connecting to the remote control unit (AJ-RC10G)

The following functions are scheduled to be supported in future upgrades.

- Connect the remote control unit AJ-RC10G (optional) to remote-control some functions.
- When you connect AJ-RC10G and set the <POWER> switches of the camera and AJ-RC10G to <ON>, the camera automatically enters the remote control mode.
- Remove AJ-RC10G, or set the <POWER> switch on AJ-RC10G to <OFF> to release remote control mode.

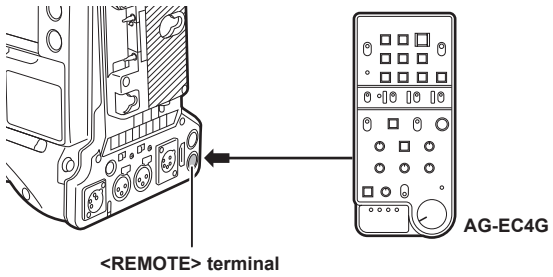


<REMOTE> terminal **AJ-RC10G**

Connecting to the extension control unit (AG-EC4G)

The following functions are scheduled to be supported in future upgrades.

- Connect the extension control unit AG-EC4G (optional) to remote control some functions.
- When you connect AG-EC4G and set the <POWER> switches of the camera and AG-EC4G to <ON>, the camera automatically enters the remote control mode.
- Remove AG-EC4G, or ensure the AG-EC4G <POWER> switch is <OFF> to release remote control mode.



Chapter 9 Maintenance and Inspection

Inspect the various parts of the camera before shooting. This chapter also explains the warnings and error messages displayed on the viewfinder screen.

Inspections before shooting

Before recording, perform the following inspection to ensure that the system operates properly. It is recommended that you check the image using a color video monitor.

Preparing to inspect

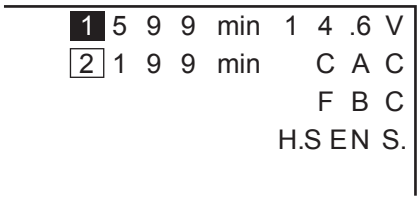


Fig. 1

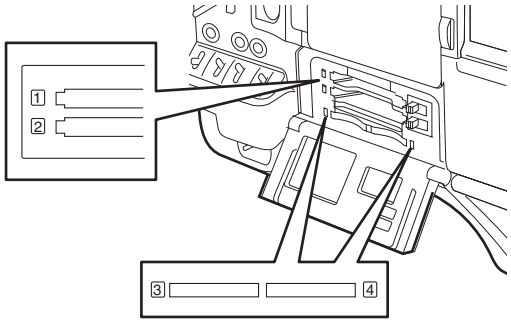


Fig. 2

1 Attach an adequately charged battery.

2 Turn the <POWER> switch <ON>, and check the battery charge level indicator on the viewfinder screen. (Fig. 1)

If the remaining battery level is low, replace the battery with an adequately charged one.

3 In the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA], select the P2 card of the recording target slot.

4 Insert a P2 card into a card slot and close the slot cover. (Fig. 2)

- Ensure that the P2 card access LED lights in orange for the card slot to which the P2 card is inserted. If both card slots have P2 cards inserted, the orange access LED only for the P2 card slot of the P2 card inserted first (the one that completed an access first) lights up, and the green P2 card access LED for the P2 card inserted second lights up.
- If the P2 card access LED for the card slot to which the P2 card is inserted flashes in green or does not light up, that P2 card is not available for recording.
- If the selection of P2 memory card or microP2 memory card does not match the inserted card, the P2 card access LED is not illuminated in orange even when the card is inserted.

  In this case, match the recording target media in the main menu → [REC/PB] → [REC/PB SETUP] → [REC MEDIA].

Inspecting the camera unit

1 Set the zoom to the electric zoom mode and check the behavior of the electric zoom.

Ensure that the image changes between telescopic and wide-angle.

2 Set the zoom to the manual zoom mode and check the behavior of the manual zoom.

Rotate the manual zoom lever and ensure that the image changes between telescopic and wide-angle.

3 Set the iris to automatic adjustment mode, and ensure that the automatic adjustment works when the lens is pointed at objects with different degree of brightness.

4 Set the iris to manual mode and rotate the iris ring to check the manual iris adjustment.

5 Set the iris back to automatic adjustment mode, and check the followings by switching the <GAIN> switch setting to <L>, <M>, and then <H>:

- The iris is adjusted for objects with same degree of brightness as the setting changes.
- The gain value display on the viewfinder screen changes as the setting changes.

6 If a lens with an extender is attached, set the extender to its usage position to ensure that it works properly.

Inspecting the memory recording functions

Perform procedures from “Inspecting the P2 card recording” to “Inspecting the earphones and speaker” successively.

Inspecting the P2 card recording

1 On the viewfinder screen display, ensure that the remaining P2 card capacity is sufficient.

For details, refer to “Screen display” (page 71).

2 Press the <REC> button and check the following:

- The P2 card access LED flashes in orange.
- The [REC] lamp in the viewfinder illuminates.
- No system warning is displayed on the viewfinder screen.

3 Press the <REC> button again.

Ensure that the P2 card access LED illuminates in orange, and that the [REC] lamp disappears from the viewfinder screen.

4 Use the <VTR> button on the lens to check the same behaviors in steps 2 to 3.

5 Press the <LIGHT> button and ensure that the display in the display window becomes brighter.

6 Press the <THUMBNAIL> button to switch to the thumbnail screen, and from the thumbnail, playback the clip you just recorded.

Ensure that the clip plays back properly.

7 If two cards are inserted in the P2 card slots, press the <USER> buttons (<USER MAIN>/<USER1>/<USER2>) to which [SLOT SEL] is assigned and switch the target P2 card.

Perform steps **2** to **3** and step **6** to ensure that the recording and playback functions operate properly.

Inspecting the audio level automatic adjustment

1 Set the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch to <AUTO>.

2 Set the <AUDIO IN> switch to <FRONT>.

3 Turn the microphone connected to the <MIC IN> terminal to an appropriate audio source, and ensure that both level displays for CH1/CH2 change according to the audio volume.

Inspecting the audio level manual adjustment

1 Set the <AUDIO IN> switch to <FRONT>.

2 Set the <AUDIO SELECT CH1/3>/<AUDIO SELECT CH2/4> switch to <MANU>.

3 Turn the <AUDIO LEVEL CH1/3>/<AUDIO LEVEL CH2/4>.

Turn to the right to increase the level display.

Inspecting the earphones and speaker

1 Adjust the <MONITOR> dial and ensure that the speaker volume changes.

2 Connect earphones to the <PHONES> terminal.

Ensure that the speaker is muted and the output from the microphone is directed to the earphones.

3 Adjust the <MONITOR> dial and ensure that the earphones volume changes.

Inspections for using an external microphone

1 Connect the external microphone to the <AUDIO IN CH1/3> terminal or <AUDIO IN CH2/4> terminal.

2 Set the <AUDIO IN CH1>/<AUDIO IN CH2> switch to <REAR>.

3 Toggle the microphone input ON/OFF switch according to the power supply for the external microphone.

- Selection items
  - <+48V>: Microphones with an external power supply
  - <OFF>: Microphones with an internal power supply

4 Turn the microphone towards an audio source, and ensure that the audio level display on the viewfinder screen changes according to the audio volume.

You can check each channel by connecting one microphone to each channel.

Inspections for the clock, time code, and user bits

1 Set the user bits as needed.

For details, refer to “User bits settings” (page 63).

2 Set the time code.

For details, refer to “Setting the time code” (page 64).

3 Set the <TCG> switch to <R-RUN>.

4 Press the <REC> button.

Ensure that the number in the counter display changes when the recording starts.

5 Press the <REC> button again.

Ensure that the number in the counter display stops changing when the recording stops.

6 Set the <TCG> switch to <F-RUN>.

Ensure that the number in the counter display changes regardless of the recording status.

7 Set the <DISPLAY> switch to <UB>.

Check that each time the <HOLD> button is pressed, [VTCG] → [DATE] → [TIME] → no display (time zone) → [TCG] value is displayed and that this value is accurate.
If [DATE], [TIME], and the time zone is incorrect, set the correct date/time. (page 30).

NOTE

- Note that date and time data based on [DATE], [TIME], and the time zone settings is recorded in the clip and affects the playback order in the thumbnail operations.

Maintenance

Charging the built-in battery

The camera uses the built-in battery to remember the date and time.

If the camera is not turned on for more than a half year, the built-in battery runs out and when the <POWER> switch is turned <ON>, [BACK UP BATT EMPTY] may be displayed on the viewfinder screen for approx. 5 seconds.

In that case, charging of the built-in battery is complete by connecting an external DC power supply or a battery and leaving the camera turned off for approximately four hours. Set the date and time after charging is complete. Charging is disabled when the time code on the display window disappears with power turned off. To charge the battery, set [ON] in the main menu → [SYSTEM] → [SYSTEM SETUP] → [P.OFF LCD DISPLAY] and display the time code on the display window.

If [BACK UP BATT EMPTY] is still displayed in the viewfinder screen after charging when the <POWER> switch is turned <ON>, the built-in battery needs to be replaced. Consult your dealer.

Warning system

Warnings description list

If an error is detected immediately after the camera turns on or during operation, the <WARNING> lamp, the lamp on the viewfinder screen, and an alarm indicate the error.

NOTE

- The priority order of each item is the warning lamp, tally lamp, and alarms, and if multiple errors occur simultaneously, highest priority one is indicated. “Reduced wireless audio reception” may not be indicated depending on the setting in the main menu → [I/F SETUP] → [MIC/AUDIO] → [WIRELESS WARN].

1 System error

Display in display window	The error code is displayed in the time code display.
Warning lamp	Flashes four times per second.
Tally lamp	Flashes four times per second.
Viewfinder	The [SYSTEM ERROR] display, error codes, and, on the lower line of these, the cause are displayed.
Alarm	Sounds continuously.
Warning content	Standard signal error or communication error.
Recording or playback operation	Stops.
Action to take	Check the factor display “Error code” and consult your dealer.

2 Mismatched format

Display in display window	The error code [E-31] is displayed in the time code display.
Warning lamp	Flashes four times per second.
Tally lamp	Flashes four times per second.
Viewfinder	[TURN POWER OFF] and [SYSTEM MODE] are displayed.
Alarm	Sounds continuously.
Warning content	An internal mismatch occurs in system mode and a restart is required.
Recording or playback operation	Does not operate.
Action to take	Follow the message to turn the power off once, turn the power on again, and check that there is no error display.

3 Card removal error

Display in display window	The error code [E-30] is displayed in the time code display.
Warning lamp	Flashes four times per second.
Tally lamp	Flashes four times per second.
Viewfinder	[TURN POWER OFF] and [P2 CARD] are displayed.
Alarm	Sounds continuously.
Warning content	An error occurred in the camera built-in memory because the P2 card being accessed was ejected.
Recording or playback operation	Does not operate.
Action to take	Follow the message to turn the power off once and turn the power on again. Ensure that there is no error in the clips on the ejected card, and repair the clips as necessary.

4 Battery end (low voltage input)

Display in display window	Seven battery charge level bars flash.
Warning lamp	Lights.
Tally lamp	Flashes once per second.
Viewfinder	The [BATT] lamp is illuminated if the viewfinder has the [BATT] lamp. [EMP] flashes in the battery charge level display. ([%] flashes for [BATT STAT] and [ENDURA STAT].)
Alarm	Sounds continuously.
Warning content	The battery has run out.
Recording or playback operation	Stops.
Action to take	Change the batteries. If the external AC adaptor is inserted from the <EXT DC IN> terminal, the warning will be released.

5 P2 card end

Display in display window	Seven media charge level bars flash.
Warning lamp	It stays illuminated until some operation is performed after recording.
Tally lamp	It continues to flash four times per second until some operation is performed after recording.
Viewfinder	The [END] display flashes in the P2 remaining charge display. (If the viewfinder has the [SAVE] lamp, and [P2CARD] is set in the main menu → [VF] → [VF INDICATOR] → [SAVE LED], the [SAVE] lamp flashes four times per second.)
Alarm	It continues to sound until some operation is performed after recording.
Warning content	The P2 card space is used up.
Recording or playback operation	Recording will stop.
Action to take	Delete clips in the recording media or insert a new recording media.

6 Recording error

Display in display window	Does not display.
Warning lamp	Flashes four times per second during continuous recording.
Tally lamp	Flashes four times per second during continuous recording.
Viewfinder	The [REC WARNING] display and rows beneath display the cause. • Displayed only while the error occurs during recording. However, it is retained for at least three seconds. • When recording stops due to an error, it is displayed until the P2 card operates. • [TEMPORARY PAUSE] may be displayed instead of [REC WARNING]. For details, refer to “Warning information display” (page 196).
Alarm	Sounds four times per second during continuous recording.
Warning content	This is a recording or recording circuit setting error.
Recording or playback operation	Recording may be continued or stopped.
Action to take	Start recording again. Or, turn the power off once and then start recording again.

7 Card error

Display in display window	Does not display.
Warning lamp	If the error occurs during recording, it flashes four times per second for approx. three seconds after recording stops. It does not flash when it occurs during playback.
Tally lamp	If the error occurs during recording, it flashes four times per second for approx. three seconds after recording stops. It does not flash when it occurs during playback.
Viewfinder	[CARD ERROR] (slot number) is displayed. • When recording stops due to an error, it is displayed until the P2 card operates. • Displayed when it occurs during playback. (for at least three seconds)
Alarm	If the error occurs during recording, it sounds four times per second for approx. three seconds after recording stops. It does not sound when it occurs during playback.
Warning content	A P2 card error occurred during recording or playback.
Recording or playback operation	The current operation will stop. After it stops, the P2 card for which the error occurred is write-protected.
Action to take	Replace the P2 card.

8 Reduced wireless audio reception

Display in display window	Does not display.
Warning lamp	Flashes four times per second. (When idle or during recording)
Tally lamp	Flashes four times per second during continuous recording.
Viewfinder	The [WIRELESS RF] display illuminates.
Alarm	Sounds four times per second during continuous recording.
Warning content	The error indicates poor wireless audio reception conditions.
Recording or playback operation	The current operation will continue.
Action to take	Check the microphone power supply and the reception status of the receiver.

9 Battery near end

Display in display window	One battery charge level bar flashes.
Warning lamp	Flashes once per second.
Tally lamp	Flashes once per second.
Viewfinder	The [BATT] lamp flashes once per second if the viewfinder has the [BATT] lamp.
Alarm	Sounds four times per second.
Warning content	The battery is about to run out.
Recording or playback operation	The current operation will continue.
Action to take	Change the batteries as needed.

10 P2 card recording near end

Display in display window	One P2 card remaining capacity bar flashes.
Warning lamp	Flashes once per second during continuous recording.
Tally lamp	Flashes once per second during continuous recording.
Viewfinder	The remaining P2 card capacity indicator flashes. (If the viewfinder has the [SAVE] lamp, and [P2CARD] is set in the main menu → [VF] → [VF INDICATOR] → [SAVE LED], the [SAVE] lamp flashes once per second (during recording, while recording pauses and stops)).
Alarm	Sounds once per second during continuous recording.
Warning content	The P2 card memory free space totals 2 minutes or less.
Recording or playback operation	The current operation will continue.
Action to take	Change the P2 card or insert an additional card as needed.

11 Fan stop

Display in display window	Does not display.
Warning lamp	Flashes four times per second.
Tally lamp	Does not display.
Viewfinder	The [FAN STOPPED] display is illuminated at all times.
Alarm	Does not sound.

Warning content	There is an error in the fan and it stops. Otherwise [OPTION MENU] → [OPTION] → [FAN MODE] → [OFF] has been set.
Recording or playback operation	Operation will continue, but if the camera is operated with the fan stopped, the temperature rises and recording/playback may not operate normally.
Action to take	If the fan has stopped with error, stop using immediately and consult your dealer. If the fan has stopped, temperature of the camera will rise. Therefore, do not use the camera for a long period of time. Use the tripod, etc., and do not touch the camera directly.

Error code

If errors occur on the camera for any cause, the following error code is displayed on the time code display in the display window. Check the types of warning, and deal with the error according to “Warnings description list” (page 194).

Code No.	Message display		Description	Type of warning
	First row	Second row		
[E-30]	[TURN POWER OFF]	[P2 CARD]	P2 card removal error	**3** Card removal error
[E-31]	[TURN POWER OFF]	[SYSTEM MODE]	System mode error	**2** Mismatched format
[E-33]	[SYSTEM ERROR]	[CAMERA]	Camera unit error	**1** System error
[E-34]	[SYSTEM ERROR]	[LCD MICON]	LCD microcomputer error	**1** System error
[E-35]	[SYSTEM ERROR]	[CODEC]	Codec control error	**1** System error
[E-36]	[SYSTEM ERROR]	[P2 SYSTEM]	P2 system error	**1** System error
[E-37]	[SYSTEM ERROR]	[P2CS]	P2CS microcomputer error	**1** System error
[E-39]	[SYSTEM ERROR]	[INITIALIZE]	Video initialization error	**1** System error
[E-63]	No display	No display	System control microcomputer error	**1** System error
[E-64]	[SYSTEM ERROR] or no display	[FRAME SIGNAL] or no display	Standard signal error	**1** System error

Warning information display

Monitor display		Description	Camera operation
First row	Second row		
[AUTH NG CARD] (slot number)	None	CPS authentication of microP2 memory card has failed. The microP2 memory card with CPS authentication failed cannot be recorded or played back. Select [AUTHENTICATE] in the main menu → [CLIP], and enter the password.	Continue
[BACKUP BATT EMPTY]	None	Displays any reduced voltage detected on the backup battery in the internal clock when the power is turned on. Follow “Charging the built-in battery” (page 193) to charge the battery.	Continue
[CARD ERROR] (slot number)	None	Displayed when an data error caused by the P2 card occurs during recording. Displayed after recording stops until the next operation. Also displayed for three seconds during playback when a P2 card error causes playback to stop. Replace the P2 card of the slot where the error occurred.	Stop
[DIR NG CARD] (slot number)	None	The directory position is not correct. Make a card backup immediately and use again after formatting.	Continue
[FAN STOPPED]	None	Displayed when the fan motor stops. The camera operates even if the fan stops. Refrain from using immediately.	Continue
[PB INTERMITTENT] (slot number)	None	Playback is interrupted on the SDHC/SDXC memory card. A card whose playback performance cannot be assured is inserted. Use of microP2 or P2 memory card is recommended.	Continue
[PROXY ERROR]	None	Proxy error For details, refer to “Error displays about proxy data recordings” (page 43).	Continue
[PROXY REC WARNING]	None	Proxy error For details, refer to “Error displays about proxy data recordings” (page 43).	Continue
[REC IMPOSSIBLE] (slot number)	None	An SDHC/SDXC memory card is inserted into the microP2 memory card slot. Recording to the SDHC/SDXC memory card is disabled. Record to microP2 or P2 memory cards.	Continue
[REC WARNING]	[FRAME SIGNAL]	Displayed when a video or audio error occurs during recording. Turn the power off and on before using it again. When input signals are disrupted, recording continues while disrupted images are recorded. Check the signal to be input to the camera.	Continue
[REC WARNING]	[OVER MAX# CLIPS]	Displayed when attempting to record in excess of the maximum total number of clips allowed for one P2 card. Replace the P2 card or delete unnecessary clips.	Stop

Monitor display		Description	Camera operation
First row	Second row		
[REC WARNING] (occurs during recording)	[PULL DOWN] (occurs during recording) [PULL DOWN ERROR] (occurs at times other than during recording)	The video pull-down sequence and time code values are not synchronized. Check the signal.	Continue
[REC WARNING]	[REC DATA]	Displayed when an error occurs in recorded data during recording. Turn the power off and on before using it again.	Continue or Stop
[RUN DOWN CARD] (slot number)	None	The maximum number of overwrites has been exceeded. Replacement of the P2 card is recommended.	Continue
[SD CARD] (slot number)	None	An SDHC/SDXC memory card is inserted into the microP2 memory card slot. The current operation will continue. Use of microP2 or P2 memory card is recommended.	Continue
[SLOT1/2 CANNOT REC] or [SLOT3/4 CANNOT REC]	[microP2 SELECTED] or [P2 SELECTED]	Displayed when the card is inserted into the slot which is not selected as the recording slot.	Stop
[TEMPORARY PAUSE]	[IRREGULAR SIG]	Correct recording is not possible due to disruption of input signals of the <GENLOCK IN> or <SDI IN> terminal, and recording is suspended temporarily. The clip will be divided. Recording resumes when the signal returns to normal. However, during loop recording, recording does not resume.	Suspend → Resume
[WIRELESS-RF]	None	Audio wireless reception status is poor.	Continue

Warning/error displays in the thumbnail operation, menu operation, and USB storage mode

■ Thumbnail and menu

Message	Description	Measure
[AUTHENTICATION ERROR!]	Manual authentication failed.	Enter the correct password.
[CANNOT ACCESS!]	Data cannot be accessed due to a content defect or some other reason.	Ensure the health of the media and the clips.
[CANNOT CHANGE!]	For a clip with the [!] mark, where a thumbnail cannot be generated, the thumbnail cannot be modified in the text memo position.	Correct the settings and content to enable display of the thumbnail.
[CANNOT DELETE!]	The content versions do not match. Cannot delete.	Match the device and contents version.
[CANNOT FORMAT!]	A P2 card problem or some other reason prevents formatting.	Check the P2 card.
[CANNOT RE-CONNECT!]	Clips cannot be remerged because either clips not recorded across multiple P2 cards are selected or other reasons.	Check the selected content.
[CANNOT REPAIR IN SELECTION!]	Some of the selected clips cannot be repaired.	Check the selected content.
[CANNOT REPAIR!]	Content that cannot be repaired is selected.	Check the selected content.
[CANNOT SAVE! FILE NAME IN USE]	A settings file of the same name exists on the SD memory card.	Use another name to save the file.
[CARD FULL!]	The P2 card or SD memory card is full.	Insert a card with free space available.
[COPY IMPOSSIBLE. TOO LARGE CLIP CONTAINED! (CLIP NAME: XXXXXX)]	Files exceeding 4 GB cannot be copied to memory card of 32 GB or less.	Copy to microP2 cards with capacity of 64 GB or more.
[INVALID VALUE!]	The data value you entered is invalid.	Enter data within the normal range.
[LACK OF CAPACITY!]	There is not enough recording capacity left on the card.	Insert a card with sufficient recording capacity.
[MISSING CLIP!]	Shot marks cannot be attached to the clips unless all clips recorded over multiple P2 cards are present.	Insert all P2 cards over which recording extended.
[NO CARD!]	No P2 or SD memory card is inserted.	Insert the relevant media.
[NO COPY TO SAME CARD!]	A clip cannot be copied to the card storing the original clip.	Copy the selected clip to a card that does not contain the original clip.
[NO FILE!]	The specified file does not exist.	Check the file.
[NO INPUT!]	No data is entered.	Enter data and then set.
[NO SD CARD!]	No SD memory card.	Insert an SD memory card.
[NOT SELECTED!]	Attempted to delete without selecting clips.	Select clips to delete.
[SAME CLIP IS SELECTED!]	Multiple instances of the same clip (copies) are included in the clips selected.	Multiple instances of the same clip (copies) cannot be copied simultaneously. Remove instances of the same clip from selected items.
[TOO MANY CLIPS!]	Too many clips are selected.	Reduce the number of selected clips.
[UNKNOWN CONTENTS FORMAT!]	This is a warning of the contents for the version that is not supported by the camera.	Match the device and content versions.
[UNKNOWN DATA!]	The metadata character code is invalid.	The metadata character code is UTF-8. Enter valid characters using a viewer.
	There is a problem with data in the file.	Create the file again.

Message	Description	Measure
[USER CLIP NAME MODIFIED!]	When adding a counter value to the clip name, characters must be deleted.	For the counter addition setting, the user clip name plus the counter value can only contain up to 100 bytes. Characters in the clip name are automatically deleted when the total number of characters exceeds this limit.
[WRITE PROTECTED!]	The P2 card or SD memory card is write-protected.	Insert write-accessible media.

■ Soft keyboard

Message	Description	Measure
[AUTHENTICATION ERROR!]	Manual authentication failed.	Enter the correct password.
[CANNOT CHANGE!]	An attempt is made to enter the [PERSON] item (user who enters the memo) when there is no text memo.	Enter the [TEXT] (text information) first.
[CANNOT SET!] [INVALID VALUE!]	The entered value is invalid.	Change the input value.
[CANNOT SET!] [NO INPUT!]	There is not input to the software keyboard.	Enter the password.
[CANNOT SET!] [RETRY PASSWORD IS DIFFERENT!]	The re-entered password is different.	Enter the correct reference password.

■ Storage

Message	Description	Measure
[CANNOT ACCESS CARD!]	An error occurred while accessing the P2 card.	Check the P2 card.
[CANNOT ACCESS TARGET!]	An error occurred while accessing the connection target.	Check the storage device status and connection.
[CANNOT COPY! FORMAT STORAGE DEVICE TO FAT]	The partition that can copy clips does not exist on the storage device.	Reformat in FAT format, or export the P2 card to create a partition.
[CANNOT FORMAT!]	The storage device cannot be formatted.	Change the connected storage device.
[CANNOT RECOGNIZE STORAGE DEVICE!]	The storage device is not correctly recognized.	Reboot the storage device or connect another storage device.
[CANNOT SELECT! MAX.6 PARTITIONS]	Storage devices with more than 6 partitions cannot be selected (mounted simultaneously).	Release selected partitions.
[CARD IS EMPTY! CANNOT COPY!]	The P2 card to copy is empty.	The copy operation is not performed because the card is empty.
[FORMAT P2 CARD!]	Cannot import to a P2 card containing clips.	Format the P2 card.
[LACK OF CAPACITY!]	Not enough space left on the storage device.	Use a new storage device with sufficient available space or a formatted storage device.
[MISMATCH COMPONENT!]	The P2 card model number of the copy source and copy destination do not match. Cannot copy.	Use the P2 cards of the same model number, or import on a clip basis.
[STORAGE DEVICE DISCONNECTED!]	The connection with the storage device is disconnected.	Reconnect the USB cable to the <USB3.0> terminal (host). When it does not function normally after that, turn off the power once and turn on the power again.
[TOO MANY PARTITIONS!]	There are too many partitions.	The maximum number of partitions on the storage device is 23. Either reformat, or use a new storage device.
[UNKNOWN DEVICE CONNECTED!]	A non-compatible DVD drive or other device is connected.	Change the connected device to the correct storage device, and then turn the power off once and turn it on again.
[VERIFICATION FAILED!]	The compare check performed after copying failed.	Copy it again.

Updating the camera firmware

There are two ways to update the firmware:

1 **Use the dedicated tool P2_Status_Logger to check and apply the update.**
Only customers registered as members to PASS (P2 Asset Support System) can log in to PASS to use the dedicated (P2_Status_Logger) tool.
With P2_Status_Logger, you can check the version information of the device used and jump to the page to download the required firmware.
For details about downloading and using P2_Status_Logger, refer to the pages displayed after logging in to PASS.
Other benefits are offered to registered users. For details, refer to the website (http://panasonic.biz/sav/pass_e) of PASS (P2 Asset Support System).

2 **Check the version using the camera and apply the update**
Check the version of the camera in the main menu → [SYSTEM] → [VERSION], and access the latest information on the firmware from the website described in NOTE, and then download the firmware as needed.

NOTE

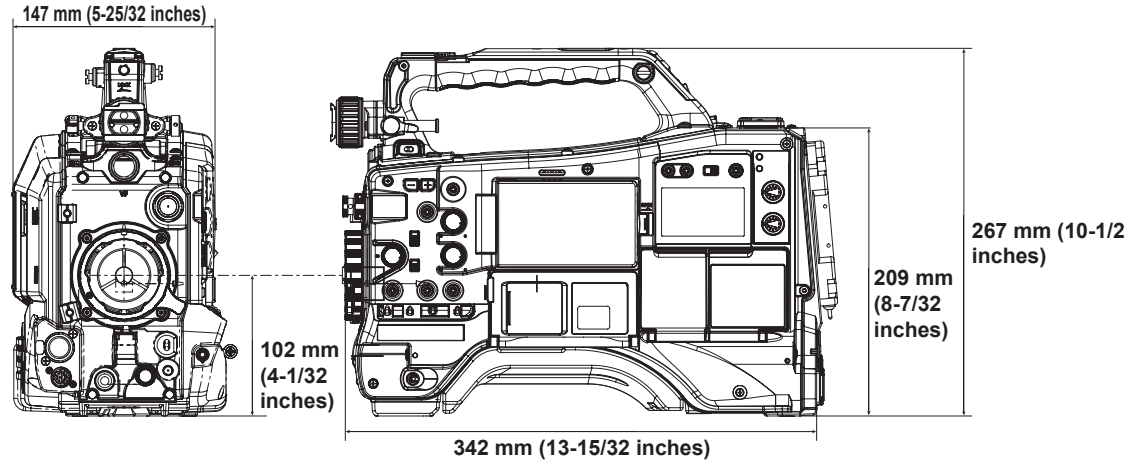
- Update completes by loading the downloaded files to the camera via the SD memory card. For details on update, visit the support desk at the following website:
http://pro-av.panasonic.net/
- On the camera, use SD memory cards that are compliant with the SD standard, SDHC standard, or the SDXC standard.
Always use the camera or P2 Viewer Plus to format the SD memory card.

Chapter 10 Specification

This chapter describes the dimensions, specifications, and connector signals.

Dimensions and specifications

Dimensions



Specifications

General

Power
DC 12 V (11.0 V – 17.0 V)
Power consumption
29 W (body only, 1080/59.94i, AVC-Intra 100 standard recording status, LCD ON)
70 W (with all optional accessories connected and maximum power supplied from each output terminal)

indicates safety items.

Ambient operating temperature	0°C – 40°C (32°F – 104°F)
Ambient operating humidity	10% – 85% (relative humidity)
Storage temperature	–20°C – 60°C (–4°F – 140°F)
Weight	Approx. 3.4 kg (7.5 lbs.) (body only, excluding the battery and accessories)
Dimensions (W×H×D)	Body only 147 mm×267 mm×342 mm (5-25/32 inches×10-1/2 inches×13-15/32 inches) (excluding protrusion)

Camera unit

Pickup device	2/3-type 2.2 million pixels, MOS×3	
Lens mount	2/3-type bayonet	
Optical filter	CC filter	A: 3200 K, B: 4300 K, C: 5600 K, D: 6300 K
	ND filter	1: CLEAR, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
Gain setting	[NORMAL] mode	–3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30 dB
	[HIGH SENS.] mode	–6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30 dB
Digital super gain (DS.GAIN)	Selectable from 6, 10, 12, 15, 20, 24, 28, 34 dB	
Super gain (S.GAIN)	Selectable from 30, 36, 42 dB	
Shutter speed	When [SYSTEM MODE] = 59.94 Hz	
	60i/60p mode	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec. HALF
	180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg	
	When [SYSTEM MODE] = 50 Hz	
	50i/50p mode	1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec. HALF
	180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg	
Synchro scan shutter	1/60.1 – 1/7200 sec. (1080/59.94p, 1080/59.94i, 480/59.94i)	
	1/50.1 – 1/6000 sec. (1080/50p, 1080/50i, 576/50i)	
Shutter open angle	Configurable between 3 deg and 359.5 deg (in 0.5 deg steps)	
Sensitivity	[NORMAL] mode	F9 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i) F10 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)
	[HIGH SENS.] mode	F12 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)
Minimum subject illumination	Approx. 0.004 lx (F1.4, +42 dB (S.GAIN), +34 dB (DS.GAIN))	

Image S/N	62 dB (standard)
Horizontal resolution	1000 TV or higher (center)

Memory card recorder

Recording media	P2 memory card, microP2 memory card	
System format	1080/59.94p, 1080/59.94i, 480/59.94i 1080/50p, 1080/50i, 576/50i	
Recording format	AVC-Intra 100/AVC-Intra 50 AVC-LongG 50/AVC-LongG 25 Switching DVCPRO HD/DVCPRO50/DVCPRO/DV formats	
Recording video signal	1080/59.94p, 1080/59.94i 480/59.94i 1080/50p, 1080/50i 576/50i	
Recording and playback time	AVC-Intra 100/ DVCPRO HD	16 GB×1 approx. 16 min 32 GB×1 approx. 32 min 64 GB×1 approx. 64 min
	AVC-Intra 50/ AVC-LongG 50/ DVCPRO50	16 GB×1 approx. 32 min 32 GB×1 approx. 64 min 64 GB×1 approx. 128 min
	AVC-LongG 25/ DVCPRO/DV	16 GB×1 approx. 64 min 32 GB×1 approx. 128 min 64 GB×1 approx. 256 min
	Figures are for continuous recording as one clip. Depending on the number of clips, the overall recording time may be shorter than the above.	

Digital video

Sampling frequency	AVC-Intra 100/ AVC-LongG 50/ AVC-LongG 25/ DVCPRO HD	Y: 74.1758 MHz, P_B/P_R: 37.0879 MHz (59.94 Hz) Y: 74.2500 MHz, P_B/P_R: 37.1250 MHz (50 Hz)
	DVCPRO50	Y: 13.5 MHz, P_B/P_R: 6.75 MHz
	DVCPRO	Y: 13.5 MHz, P_B/P_R: 3.375 MHz
Quantizing	AVC-Intra 100/AVC-Intra 50/AVC-LongG 50/AVC-LongG 25: 10 bits	
	DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bits	
Video compression format	AVC-Intra 100 AVC-Intra 50	MPEG-4 AVC/H.264 Intra Profile
	AVC-LongG 50/ AVC-LongG 25	MPEG-4 AVC/H.264
	DVCPRO HD/ DVCPRO50/ DVCPRO	DV-Based Compression
	DV	DV Compression

Digital audio

Recording audio signal	AVC-Intra 100/ AVC-Intra 50	48 kHz/16 bits, 4CH and 48 kHz/24 bits, 4CH switch
	AVC-LongG 50/ AVC-LongG 25	48 kHz/24 bits, 4CH
	DVCPRO HD/ DVCPRO50	48 kHz/16 bits, 4CH
	DVCPRO/DV	48 kHz/16 bits
Headroom	18 dB/20 dB switchable menu	

Proxy

Video compression format	MPEG4 Simple Profile H.264/AVC Baseline Profile H.264/AVC High Profile	
Audio compression format	AAC-LC Linear PCM	
Approximate recording time (1 GB)	STD 2CH MP4	Approx. 78 min
	SHQ 2CH MOV	Approx. 25 min
	HQ 2CH MOV	Approx. 78 min
	HQ 4CH MOV	Approx. 72 min
	LOW 2CH MOV	Approx. 135 min
	These are reference values for continuous recording using the Panasonic products. The recording time may differ depending on the scene or the number of clips.	

Video input/output

<SDI IN> terminal	BNC×1	
	HD (3G/1.5G), SD: 0.8 V [p-p], 75 Ω	
	Switch the menu to use as <VIDEO IN> terminal/return video input terminal/<GENLOCK IN> terminal	
<SDI OUT1> terminal	BNC×1	
	HD (3G/1.5G), SD: 0.8 V [p-p], 75 Ω	
<SDI OUT2> terminal	BNC×1	
	HD (3G/1.5G), SD: 0.8 V [p-p], 75 Ω	
<VIDEO OUT> terminal	BNC×1	
	Composite	1.0 V [p-p], 75 Ω
<HDMI OUT> terminal	HDMI×1 (HDMI type A terminal, not compatible with VIERA Link)	

Audio input/output

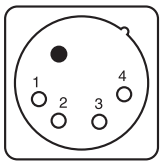
<AUDIO IN> terminal <CH1>/<CH2>	XLR×2, 3-pin <LINE>/<MIC>/<MIC+48V> switchable type	
	<LINE>	4 dBu (–3/0/4 dBu selectable menu)
	<MIC>	–60 dBu (–60/–50 dBu selectable menu)
	<MIC+48V>	Phantom +48 V supported, –60 dBu (–60/–50 dBu selectable menu)
<MIC IN> terminal	XLR×1, 5-pin Phantom +48 V (selectable menu), –40 dBu (–50/–40 dBu selectable menu)	
Wireless slot	25-pin, D-SUB, –40 dBu, 2ch supported	
<AUDIO OUT> terminal <CH1>/<CH2>	XLR×1, 5-pin	
	+4 dBu (–3/0/4 dBu selectable menu), equilibrium low impedance	
<PHONES> terminal	Stereo mini jack×2	
Speaker	20 mm diameter, round×1	

Other input/output

<GENLOCK IN> terminal	BNC×1, 1.0 V [p-p], 75 Ω
<TC IN> terminal	BNC×1, 0.5 V [p-p] – 8 V [p-p], 10 kΩ
<TC OUT> terminal	BNC×1, 2.0±0.5 V [p-p], low impedance
<DC IN> terminal	XLR×1, 4-pin, DC 12 V (DC 11.0 V – 17.0 V)
<DC OUT> terminal	4-pin, DC 12 V (DC 11.0 V – 17.0 V), maximum output current 1.5 A
<REMOTE> terminal	10-pin
<LENS> terminal	12-pin
<VF> terminal	20-pin
<LAN> terminal	100BASE-TX/10BASE-T
<USB2.0> terminal (device)	Type B connector, 4-pin
<USB3.0> terminal (host)	Type A connector, 9-pin
<USB2.0> terminal (host)	Type A connector, 4-pin
<LIGHT> terminal	2-pin, DC 12 V (DC 11.0 V – 17.0 V), maximum output current 4.5 A (up to 50 W equivalent)
LCD monitor	3.45 type LCD monitor, approx. 921000 dots (16:9)

Details of the connector signals

DC IN



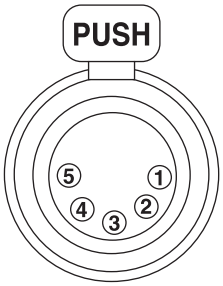
1	GND
2	NC
3	NC
4	+12 V

Panasonic Parts No.: K1AA104H0038
Manufacturer Parts No.: HA16RX-4P (SW1) (76) (Hirose Electric Co.)

NOTE

- Make sure that the polarity of the external power supply is correct.

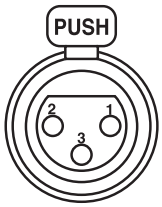
FRONT MIC IN



1	GND
2	L CH IN(H)
3	L CH IN(C)
4	R CH IN(H)
5	R CH IN(C)

Panasonic Parts No.: K1AB105B0002
Manufacturer Parts No.: NC5FBH (NEUTRIK)

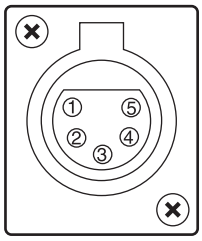
AUDIO IN



1	GND
2	AUDIO IN (H)
3	AUDIO IN (C)

Panasonic Parts No.: K1AY103A0001
Manufacturer Parts No.: HA16PRM-3SG (72) (Hirose Electric Co.)

AUDIO OUT

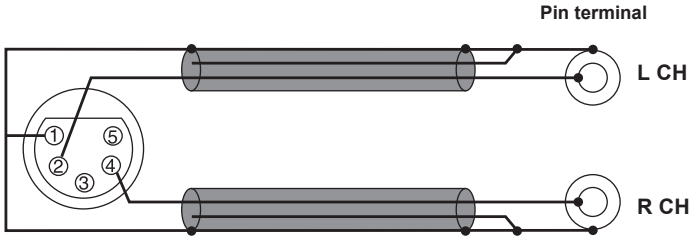


1	GND
2	L CH OUT(H)
3	L CH OUT(C)
4	R CH OUT(H)
5	R CH OUT(C)

Panasonic Parts No.: K1AA105H0016
Manufacturer Parts No.: HA16RD-5P(76) (Hirose Electric Co.)

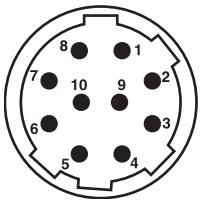
NOTE

- The <AUDIO OUT> terminal on the camera is the XLR terminal and outputs balanced audio signals. To make unbalanced connection with an external device using a pin plug, release pins 3 and 5.
  The following is a connection example.



Do not use the cable where the pin 3, pin 5 and pin 1 are connected. Doing so may result in a malfunction.

REMOTE



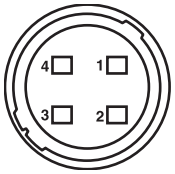
1	CAM DATA (H)	Data from camera to remote control (H)
2	CAM DATA (C)	Data from camera to remote control (C)
3	CAM CONT (H)	Control signal from remote control to camera (H)
4	CAM CONT (C)	Control signal from remote control to camera (C)
5	R/C ON	Recognition signal of remote control Low: ON
6	R/C VIDEO OUT	Video signal output to remote control
7	R/C VIDEO GND	GND for video signal to remote control
8	NC	Not used
9	UNREG+12 V	DC 12 V power supply (AJ-RC10G: Max. 0.75 A)
10	GND	GND

Panasonic Parts No.: K1AY110JA001
Manufacturer Parts No.: HR10A-10R-10SC (71) (Hirose Electric Co.)
Manufacturer Parts No. of cable connector: HR10A-10P-10P(73) (Hirose Electric Co.)

NOTE

- Ensure that the total current from the <DC OUT> terminal, <REMOTE> terminal, <VF> terminal, <LENS> terminal does not exceed 2.5 A.

DC OUT



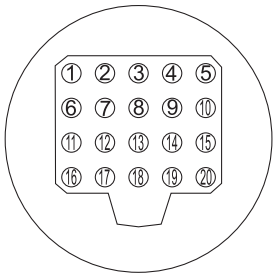
1	GND
2	R TALLY (open collector)
3	REC START SW
4	+12 V OUT DC (11 V – 17 V) (max. 1.5 A)

Panasonic Parts No.: K1AY104J0001
Manufacturer Parts No.: HR10A-7R-4SC (73) (Hirose Electric Co.)
Manufacturer Parts No. of cable connector: HR10A-7P-4(73) (Hirose Electric Co.)

NOTE

- Ensure that the total current from the <DC OUT> terminal, <REMOTE> terminal, <VF> terminal, <LENS> terminal does not exceed 2.5 A.

VF



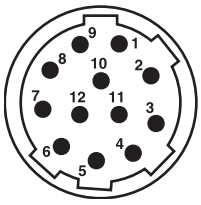
1	UNREG-12V	DC 12 V power (AJ-HVF21KG: approx. 0.35 A)
2	UNREG-12V	DC 12 V power
3	A9.0V	DC 9 V power (not used)
4	VF-P_B-GND	Viewfinder P_B signal GND
5	VF-P_R-GND	Viewfinder P_R signal GND
6	VF-Y	Viewfinder Y signal output
7	VF-Y-GND	Viewfinder Y signal GND
8	VF-CLK	Serial data clock pulse signal
9	VF-WR	Pulse signal for serial/parallel conversion data reading
10	VF-DATA	Serial data signal for serial/parallel conversion
11	UNREG-GND	GND
12	ZEBRA-SW	On/off of zebra signal
13	PEAKING	Peaking control (not used)
14	SPARE	Spare (not used)
15	VF-P_R	Viewfinder P_R signal output
16	VF-P_B	Viewfinder P_B signal output
17	MARKER-SW	Marker ON/OFF (not used)
18	FRONT-VR	F.AUDIO LEVEL adjustment (not used)
19	VR-GND	F.AUDIO LEVEL GND (not used)
20	UNREG-GND	GND

Panasonic Parts No.: K1AB120H0001
Manufacturer Parts No.: HR12-14RA-20SC (Hirose Electric Co.)

NOTE

- Ensure that the total current from the <DC OUT> terminal, <REMOTE> terminal, <VF> terminal, <LENS> terminal does not exceed 2.5 A.

LENS



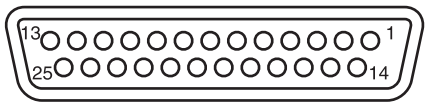
1	RET-SW
2	REC-START/STOP
3	GND
4	IRIS-AUTO
5	IRIS-CONT
6	UNREG+12 V (max. 1.5 A)
7	IRIS-POSI
8	IRIS-G-MAX
9	EXT-POSI
10	ZOOM-POSI
11	FOCUS-POSI
12	SPARE

Panasonic Parts No.: K1AY112JA001
Manufacturer Parts No.: HR10A-10R-12SC (71) (Hirose Electric Co.)

NOTE

- Ensure that the total current from the <DC OUT> terminal, <REMOTE> terminal, <VF> terminal, <LENS> terminal does not exceed 2.5 A.

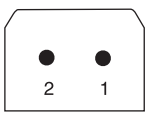
Wireless microphone receiver interface



1	CH-1 SHIELD	GND
2	CH-1 HOT	Audio input from the wireless microphone receiver: CH1 HOT
3	CH-1 COLD	Audio input from the wireless microphone receiver: CH1 COLD
4	GND	GND
5	UNREG +12 V	Power supply to the wireless microphone receiver
6	RX ON	Power remote output to the wireless microphone receiver
7	RF WARN	RF warning input from the wireless microphone receiver
8	RM5	Not used
9	RM4	Not used
10	SPARE 1	Not used
11	SPARE 2	Not used
12	EXT CLK	Not used
13	CLK SHIELD	Not used
14	CH-2 SHIELD	GND
15	CH-2 HOT	Audio input from the wireless microphone receiver: CH2 HOT
16	CH-2 COLD	Audio input from the wireless microphone receiver: CH2 COLD
17	+5.6 V	Power supply to the wireless microphone receiver
18	VIDEO OUT	Not used
19	VIDEO RET	Not used
20	VIDEO EN	Not used
21	RM 1 (RM CLK)	Not used
22	RM 2 (RM DATA)	Not used
23	RM 3 (RM WR)	Not used
24	RM+5 V	Not used
25	RM GND	Not used

Panasonic Parts No.: K1GB25A00010
Manufacturer Parts No.: HDBB-25S (05) (Hirose Electric Co.)

LIGHT



1	12 V UNREG	Power supply to the light, etc. (supplied from the battery)
2	GND	GND

Panasonic Parts No.: VJS4444

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Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

EU

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

EU

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Cd

Information on Disposal in other Countries outside the European Union
These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):
This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

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